Computer Masti

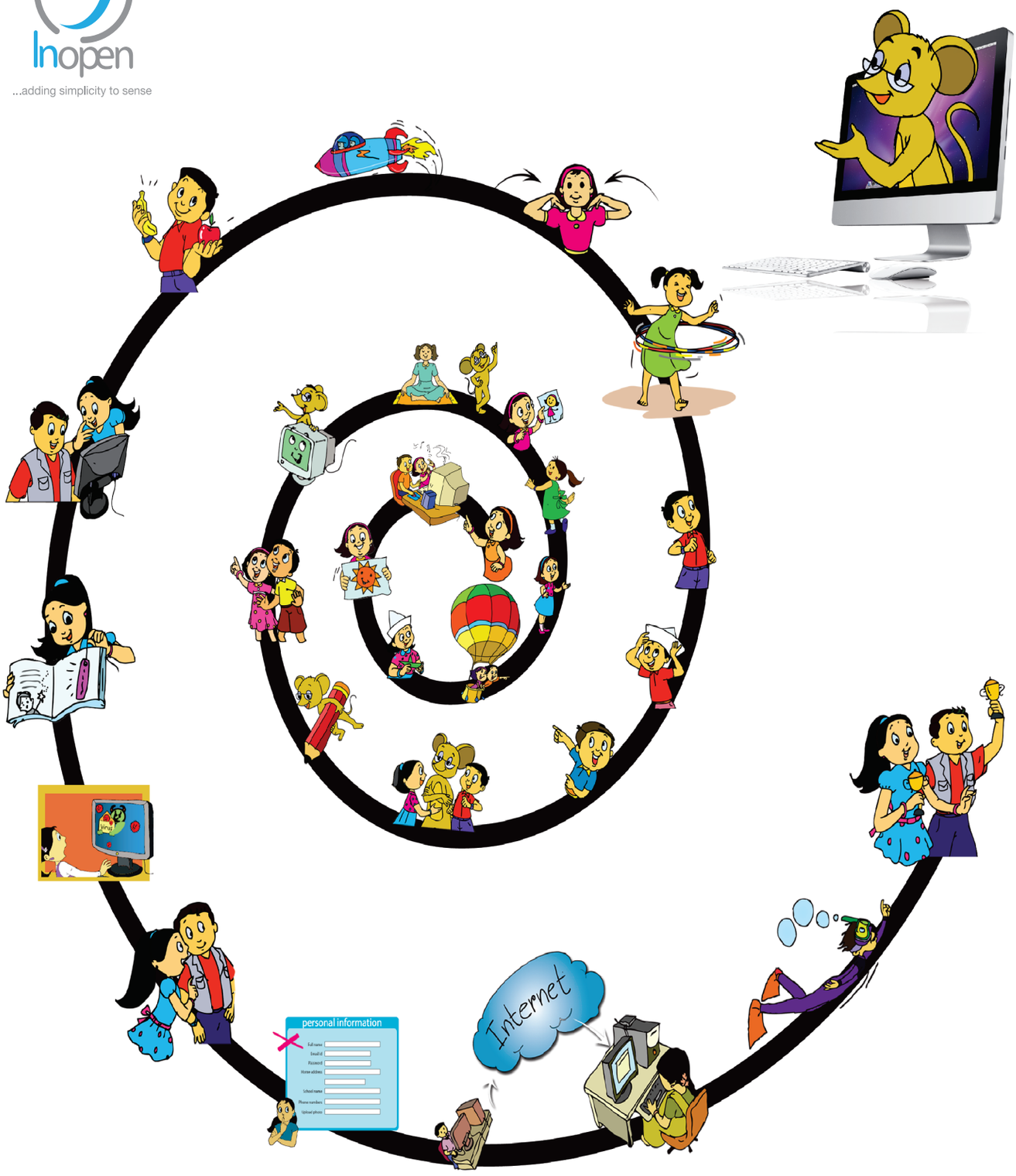
LEVEL

III



Inopen

www.computermasti.com



A Collaborative Product from IIT Bombay and InOpen Technologies

Please refer to the last page for copyright and license details

Computer Masti

Level III



Created at:
Department of Computer Science & Engineering
Indian Institute of Technology Bombay
Mumbai, India.
www.cse.iitb.ac.in

Editors
Sridhar Iyer
Malati Baru

Authors
Farida Khan
Usha Viswanathan
Vijayalakshmi Chitta

Powered by:
InOpen Technologies

Design
Sameer Sahasrabudhe
Swati Revandkar

Illustrations
Kaumudi Sahasrabudhe



About This Book

This book has evolved out of contributions from many authors, bringing together a variety of creative ideas. The salient features of this book are:

- The book is based on a detailed computer science syllabus that has been reviewed by many experts. This syllabus is available for download from *www.computermasti.com*.
- Establishing clarity of thought and developing computer fluency is the main objective of Computer Masti.
- Fun is an important element of learning.
- The lesson contents are woven around interactions between an imaginary teacher and two students. The teacher mostly asks questions that guide the students to discover and learn topics on their own.
- Each lesson focusses on specific concepts and associated skills. These concepts are selected such that: (i) They lay a strong foundation for learning computers. (ii) They contribute towards general intellectual development, and (iii) They are age appropriate.
- The Worksheets and Activities are designed in such a way that they supplement topics being covered in other subjects, to the extent possible. Group activities are included in each lesson to encourage collaborative learning. Projects are also suggested to reinforce the learning of topics across multiple lessons.
- 21st century skills of critical thinking, collaboration, communication and creativity are addressed in the lesson content and supplementary activities.
- The book meets the standards suggested for continuous and comprehensive evaluation (Right To Education).
- The lessons and activities are based on free and open source software. The Computer Masti Toolkit (in the CD) is easy to install on commonly used operating systems.
- The book includes child friendly illustrations that are sensitive to body image and gender issues.
- Each Lesson has a Teacher's Corner section, which gives a lesson plan outline, some dos and don'ts, and pointers to when each worksheet has to be given to students.
- Emphasis on healthy computer practices, including SMART rules of Internet safety, AWARE guidelines for responsible use of Internet resources are addressed in the lesson content and supplementary activities. Poster about these are available on the website. You can put these on the display boards. This would serve as quick reference and memory trigger for the students.
- The online (e-book) version is available freely for individual use, under the conditions described earlier in the Copyright Statement. You may download it from: *www.computermasti.com*.
- Comments on the book and suggestions may be sent to Sridhar Iyer (sri@iitb.ac.in).

Acknowledgements:
This second edition is a result of incorporating several suggestions by Sahana Murthy and Farida Khan. We are thankful to Aruna Adil, Aruna Prabhala, Moushumi Pati, Neela Srinivasan and Srinath Perur, for their contribution to the preliminary content, prior to the first edition. We are also thankful to Vaijayanthi Sarma for her meticulous review during the first edition. We acknowledge the support provided by Rekha Kale, Pravin Ingle, Vinod Bhalerao and Bhairavnath Lahotkar.
We are grateful to IIT Bombay for support during the creation of this book. We are also grateful to the SSRVM Trust, especially the staff of SSRVM Mulund, for support during the pilot implementation. Last but not the least, the teachings of Sri Sri Ravishankar have been a major source of inspiration for this book.

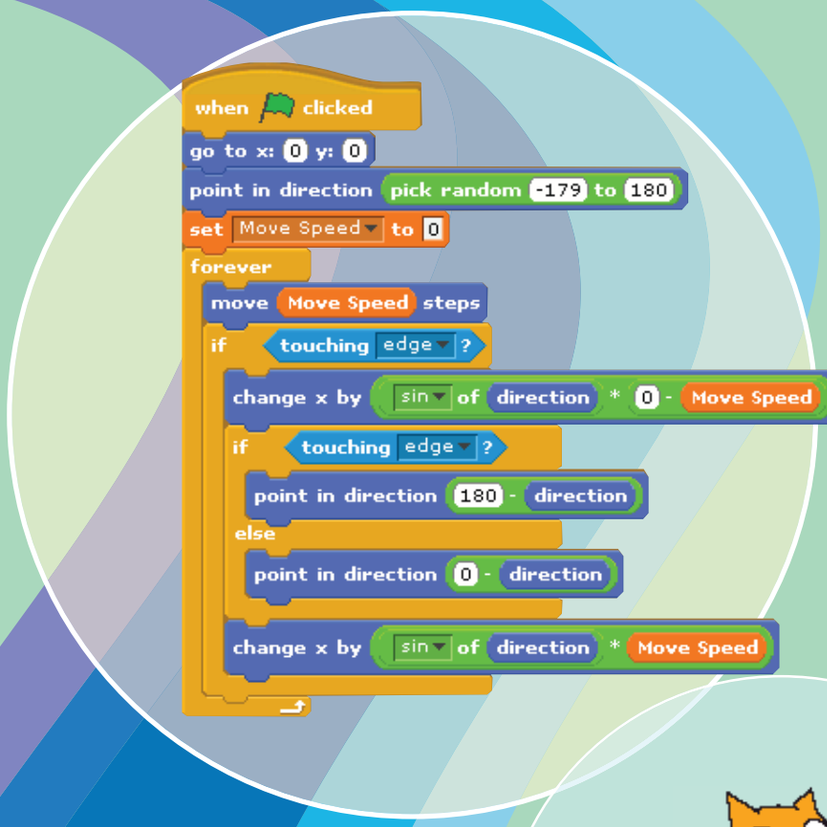


How To Use This Book

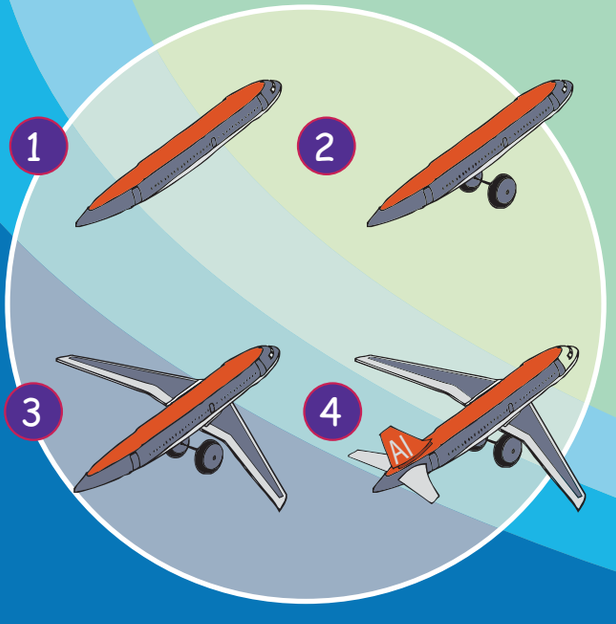
This book is meant to be used for teaching computers to children in a way that is mostly fun (as indicated by the "Masti" in the title). The teacher's role is primarily that of a facilitator encouraging active learning. Specific guidelines for each lesson can be found in the Teacher's Corner of each lesson. Ensure that the conceptual understanding is mastered before proceeding to the skills. Allow students to play educational computer games included in each lesson in order to reinforce learning of the concepts/skills covered in the lesson. In the computer lab, if they are doing activities in groups, ensure that they switch "drivers" frequently, so that each student gets to do a fair amount of the computer based activities. The Worksheets include exercises to inculcate higher order thinking skills. Use the Group Activities and Projects to stimulate creativity and knowledge sharing. The book is designed so that it can be covered comfortably in one year, with one class (30 to 45 minutes) per week. See the table below for an overview of the concepts, skills and values covered in each lesson along with a week wise schedule.

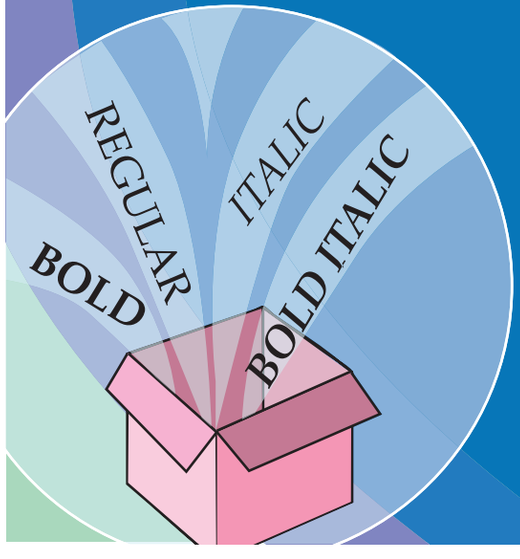
Lesson No.	Topic Name	Concepts	Skills	Values reinforced	Weeks
1.	Revision of Level II	o Input and output. o Correct ways to use computers. o Organization and grouping of files. o Folders and file naming. o Text editing. o Start up and shut down. o Authentication.	o Exercises for hand, neck, eye and shoulder. o Posture while using computers. o Create, move, drag drop of files and folders. o Using arrow, delete, backspace, caps lock keys.	Team work, sharing of resources and being careful.	1st - 4th
2.	Step-wise Thinking	o Different steps involved in an activity. o Importance of sequence of the steps in an activity. o Step wise instructions given to a computer.	o Breaking down an activity into a list of main steps. o Identifying the detailed steps of every main step. o Given the various tasks of an activity, identify the sequence of tasks.	Group activity reinforces students to think in groups and exchange ideas with each other.	5th - 9th
3.	Introduction to Scratch	o Instructions within a program. o Construction of a program with a set of instructions.	o Using commands of motion, pen and sound blocks. o Write a script (program) using drag and drop of graphic blocks. o Execute the script and view the result in the stage area.	Reinforces creativity while constructing innovative scripts.	10th -14th
4.	Asanas while using Computers	o Importance of exercises while using computers.	o Exercises for wrists, neck, eyes and spine.	Performing exercises together and learning from each other.	15th -18th
	REVISION				19th -23rd
5.	Simple Animation with Scratch	o Control instructions in a program. o Loop and conditional instructions.	o Construct a program by using instructions of control block. o Changing background of a program.		23rd -27th
6.	Fun with Text Processing	o Text editing. o Formatting guidelines.	Formatting text: o Bold, Italics, Underline o Changing Font type, size and colour.		28th -30th
7.	Projects				30th -32nd




when clicked
go to x: 0 y: 0
point in direction pick random -179 to 180
set Move Speed to 0
forever
move Move Speed steps
if touching edge ?
change x by sin of direction * 0 - Move Speed
if touching edge ?
point in direction 180 - direction
else
point in direction 0 - direction
change x by sin of direction * Move Speed


SCRATCH


1
2
3
4


REGULAR
ITALIC
BOLD
BOLD ITALIC

ComputerMasti
Level III

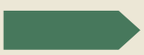
Contents

Sr. No	Name of the lesson	Page Number
0.	Two Years Ago...	1
1.	Revision of Level II	2
2.	Step-wise Thinking	16
3.	Introduction to Scratch	30
4.	Asanas while using Computers	50
5.	Simple Animation with Scratch	64
6.	Fun with Text Processing	78
7.	Projects	92





Legends used in the book

Indicator	Explanation
	Lists the topics covered in the lesson.
	Explains the concept discussed in that section of the lesson.
	Gives step by step instructions to do a task (on the computer) in the application being discussed.
	General recommendations that help to achieve a certain goal.
	Provides information and/or additional details about a skill or concept.
	Lists the expected measurable learning objective to be attained by the student after learning the topic.
	Pages with this icon have Worksheets; that test extent to which learning objectives of the lesson are attained.
	Pages with this icon have Activities, which reinforce students' learning.
	This icon represents after class collaborative activities to be presented later in the class for discussion and/or review.
	This image has tasks students can do to gain additional knowledge on the topic of the lesson.
	Pages with this icon gives pointers to the teacher on how to teach the lesson.
	This icon points to a list of websites that can be referred for self learning.

Black Italic text	Search Keyword, examples and Web site address.
Bold black text	New word introduction.
Bold Orange text	New Technical term introduction.

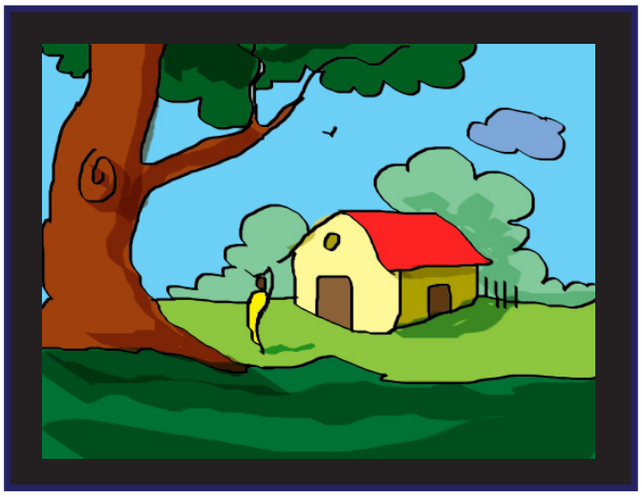
Two years ago...

Jyoti and Tejas met Moz in the school computer lab. Since then they have had a lot of fun learning about computers and the activities that can be done using computers. They have shared quite a few stories and also learnt from each other. Moz has just returned from a vacation to Timbaktu and the children are back from a visit at their grandparents.

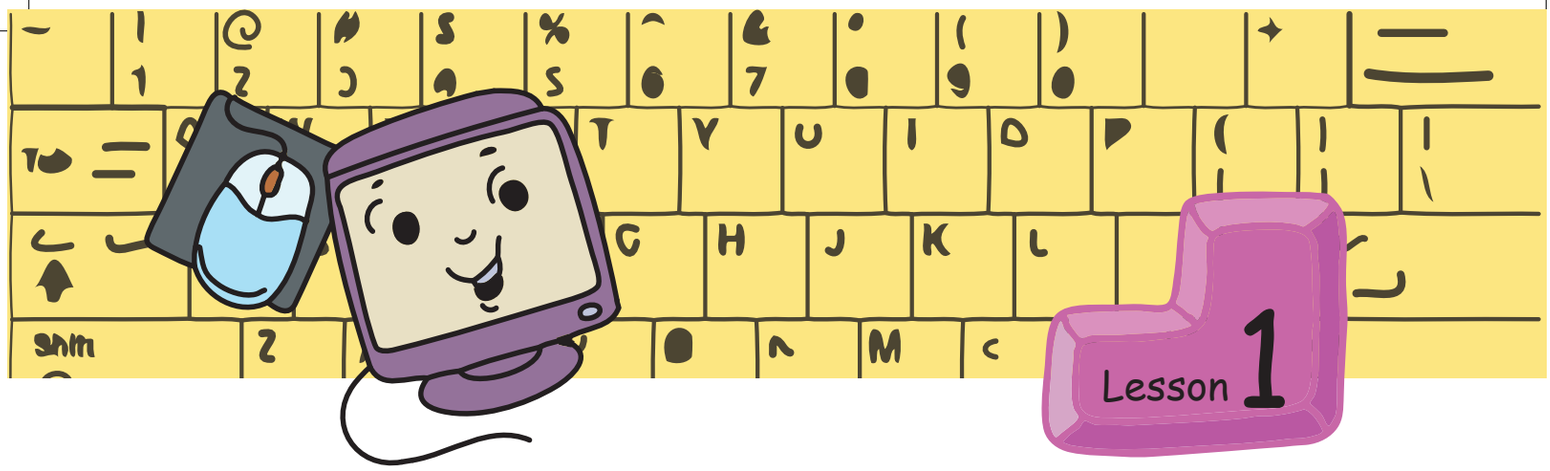
Jyoti: Moz, how was your trip to Timbaktu in Anantapur?
Moz: Oh! So you know where Timbaktu is. I enjoyed my trip. The children there were interested in learning about computers. The children taught me how to do pottery. So what did you do during your vacation?



Tejas: I taught my grandparents Tux Paint, Text editor and other activities. They enjoyed playing Gcompris games. My grandmother liked the memory games and my grandfather was interested in Tux Paint. He drew this painting for me.

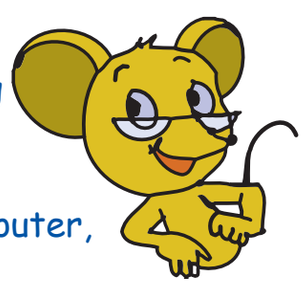


Jyoti: I was with my cousins during the vacation. They taught me some new games and yoga. We did some projects together. We wrote some stories on the computer.
Moz: That is good.
Tejas and Jyoti: We want to build our own game using the computer.
Moz: Sure, you can. We will start tomorrow.



Revision of Level II

Tejas and Jyoti have to conduct a quiz on what they learnt in their previous computer class. They come to Moz to discuss and prepare an interesting quiz using the text editor.



Moz: What is the first step to create a quiz using the computer?
Tejas: Open text editor!
Jyoti: Yes, but first we have to switch on the computer, login and then open the text editor.
Tejas: I have switched on the computer but I can't see anything on the monitor.
Moz: So what should you check?
Jyoti: Let us see if the monitor is connected to the CPU and if the switch is on. You should also check if all the input [Mouse, Keyboard] and output [Monitor, Printer, Speaker] devices are connected.
Tejas: Oh, the monitor is not connected. Let us connect it.
Jyoti: Yes, now all devices are connected. I can now enter my username and password. Then we can start the text editor.



Tejas: The title of the quiz can be written in capital letters by using Caps Lock key.
Jyoti: It will be fun to create different questions for the quiz.

Tejas and Jyoti take turns to type the questions.

Moz: Along with each question also type the answers. This will be a revision for you.

Fill in the blanks.

1. Input and Output Devices

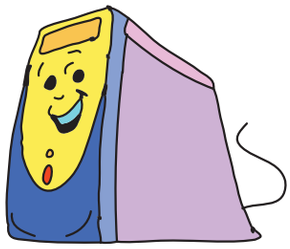
Input

- Input devices allow us to <u>send</u> information to the computer.
- Input to a computer is usually given by <u>clicking</u> the mouse or by <u>typing</u> on the keyboard.

Output

- Output devices allow us to receive information from the computer.
- Output may be printouts from the printer, sounds on the speaker, or images on the monitor.

CPU

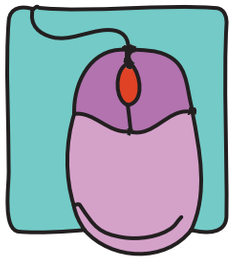


- CPU controls all the input and output devices connected to it.
- A device has to be connected to the CPU to send or receive information.
- The CPU is neither an input nor an output device. It takes the information given by the input devices, does the work and sends the result to the output devices.

2. Computers and your health

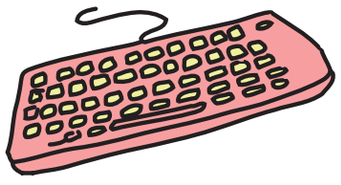
- Use computers for only half an hour at a time.
- Use computers for not more than one hour per day.
- Do not touch power cables and ensure that they are insulated.
- Do not put fingers or objects into the power socket or other sockets.

3. Activities using a Mouse



- Desktop has activity icons and folder icons.
- The icons can be rearranged by using the drag and drop action of the mouse.
- New folders can be created and also moved to different locations on the desktop.
- Folders are used to organize files on a computer.
- Folders help in keeping related files together, to allow us to find them easily.
- Files can be moved into folders by using Drag and Drop.

4. Activities using keyboard



- Caps Lock is used to type the letters of the alphabet in upper case.
- Backspace is used to delete a letter before the cursor position.
- Delete is used to delete the letter to the right of the cursor position.
- The four directional arrow keys, page up and page down keys are used to move the cursor around in the text file.

5. Text Editing



File options:

- Open is used to open an existing file.
- Save is used to save the file after completing the worksheets.
- Print is used to print the file.

Editing options:

- Copy is used to copy text and Paste is used to insert the copied text in another location.
- Cut is used to remove the text from a location and Paste is used to insert that text in another location.
- Making changes to the written text is called editing.
- Any editing done to the text can be undone using Undo.

6. Start up and Shut down

Start up:

- Computer is a machine which runs on electricity.
- Parts of a computer like CPU, Monitor, Mouse and Keyboard require electricity.
- To start a computer, switch on the power supply and then the 'Power' button on the CPU.
- Booting is the sequence of actions done by the computer while starting.

Authentication – Login and Logout

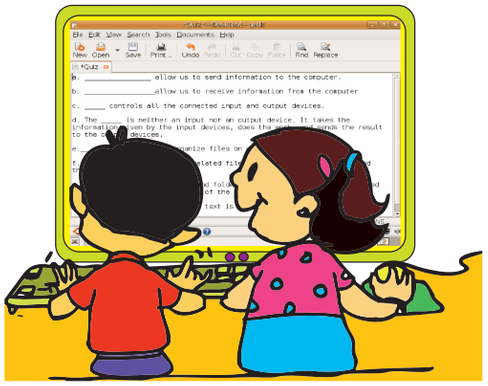
- When a computer is shared by more than one person, each user is given a username and password to access it.
- The username is also called login.
- Each username has a secret key which is called password.
- The username and password ensures that only those who have permission can use the computer.
- When both the username and password are typed correctly, you can login.
- Logout is the action of closing your access to the computer.

Shut down:

- Shut down is the action of closing all the activities and stopping the computer.
- The power supply to the computer should be switched off only after shutting down the computer.

Tejas and Jyoti show the quiz questions to Moz.

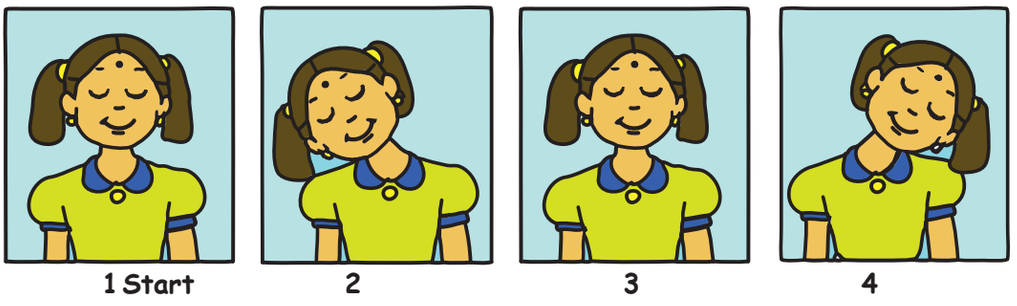
Moz: Very good. Now suppose you want to make some changes in the text, how can you do that?
Tejas: We can use the arrow keys to move the cursor. The Backspace and Delete keys can be used to erase the text.
Moz: The quiz paper looks interesting. Do not forget to save it with a suitable name.



Jyoti: By creating a quiz, we have a new worksheet!
Moz: Now that you have finished setting a quiz paper, do you want to logout?
Jyoti: I will logout after organizing the desktop. I will create new folders and use 'drag and drop' to move the files to folders.
Tejas: I will login and use the Paint application to create an invitation for the quiz.
Moz: You have been using the computer for a long time now. What should you do?
Tejas: We will shut down the computer and do some exercises.

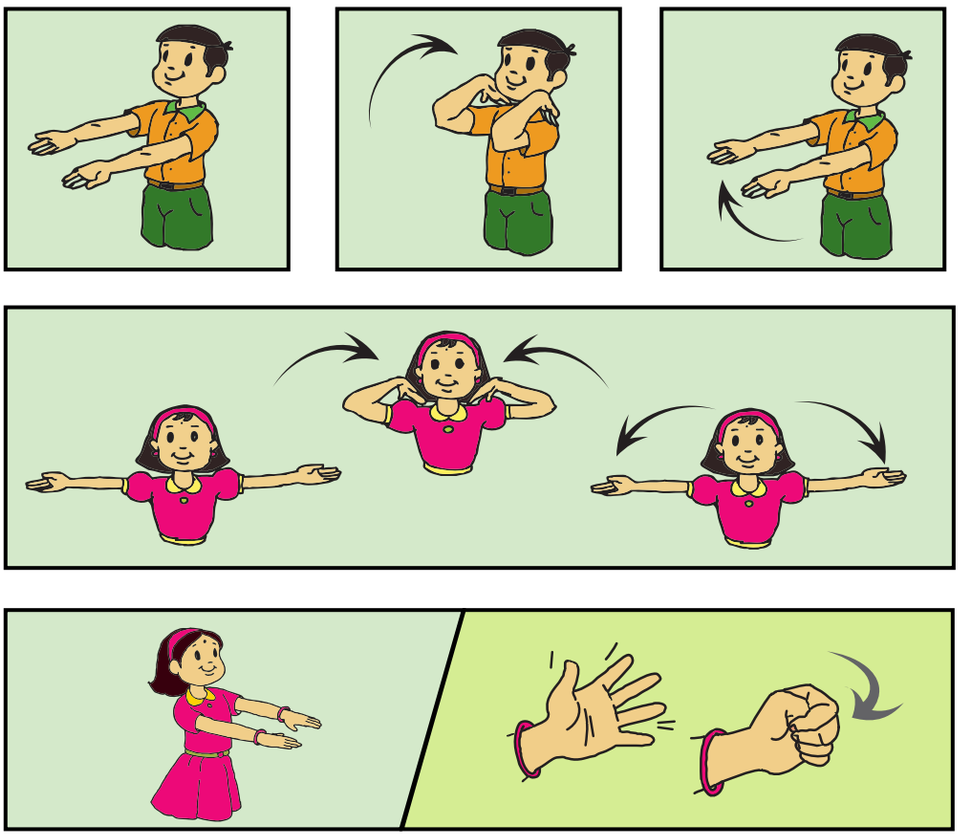
Exercises

o Neck exercises

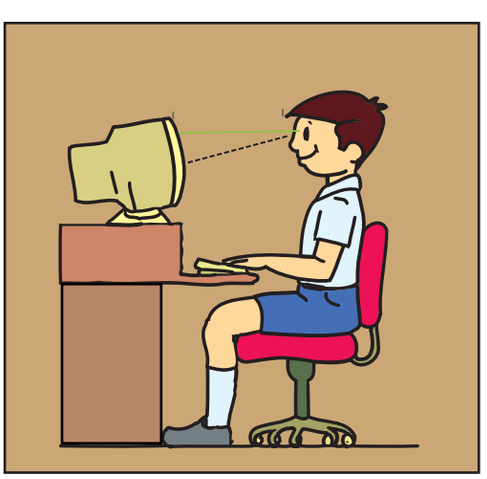




o Hand exercises



o Posture to be observed while using the computer



Moz: See you next time. Chin Chinaki...

Learning Outcome

After you have studied this lesson you will be able to:

- Recall and apply what was learnt in Level II.

WORKSHEETS



1. State whether True or False.

a) A mouse is the output device of a computer. | True | False |

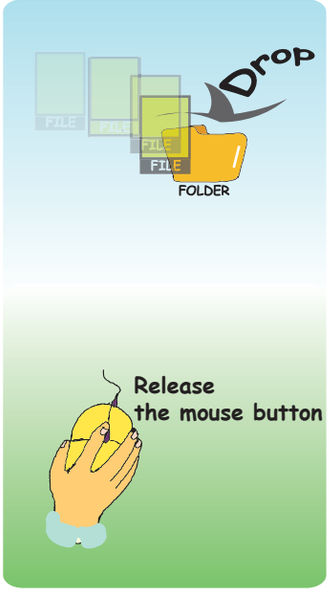
b) Folders are used to organize files on a computer. | True | False |

c) Caps lock key is used to type letters in lower case. | True | False |

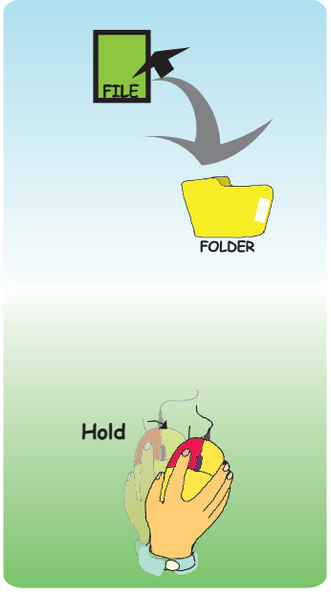
d) Booting is the sequence of actions done by the computer while starting. | True | False |

e) Passwords should be kept a secret. | True | False |

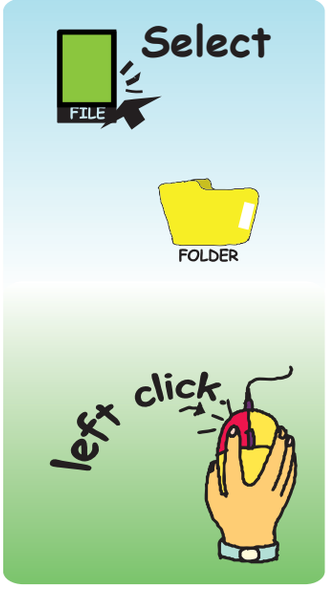
2. Deepa wants to move a file from the desktop to a folder. Can you guide her by numbering the steps in the proper order?



Release the mouse button and drop the icon.



Hold the mouse button down and drag the icon to the new location.



Left Click on the icon to be moved.



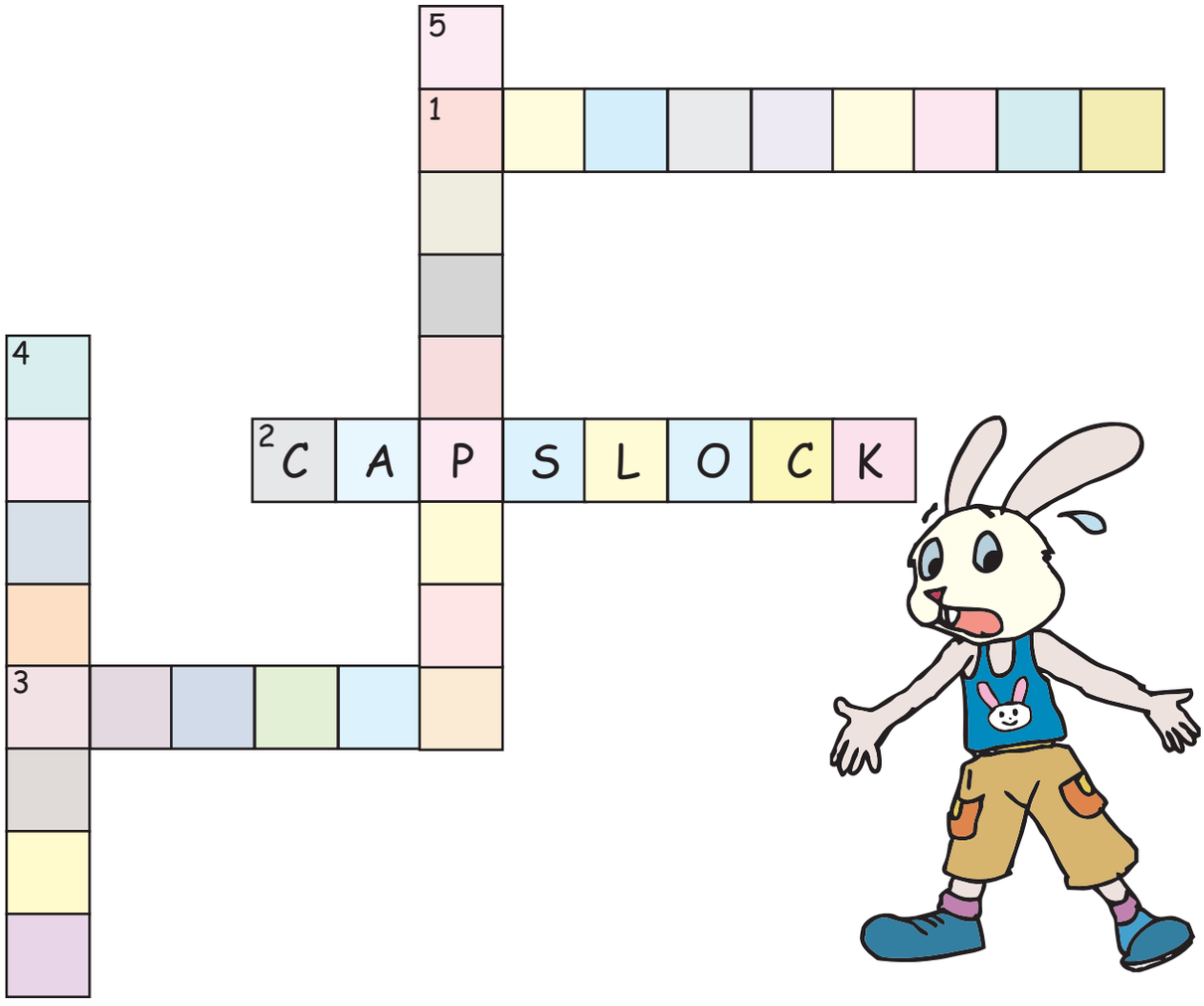
3. Kichu the rabbit wants to complete the crossword puzzle. Can you help him?

Across:

1. The four directional _____ _____help you move the cursor to the left, right, up and down.
2. You use _____ _____ to type letters in upper case.
3. _____ erases the letter to the right of the cursor.

Down:

4. _____ _____ allows you to scroll down one page.
5. _____ key is used to delete a letter before the cursor position.



WORKSHEETS



4. See the pictures below. Put a 'tick' for the correct postures.

A) Riya is watching cartoons. Is her posture correct?



b) Deepak is working on a computer. Is his posture correct?



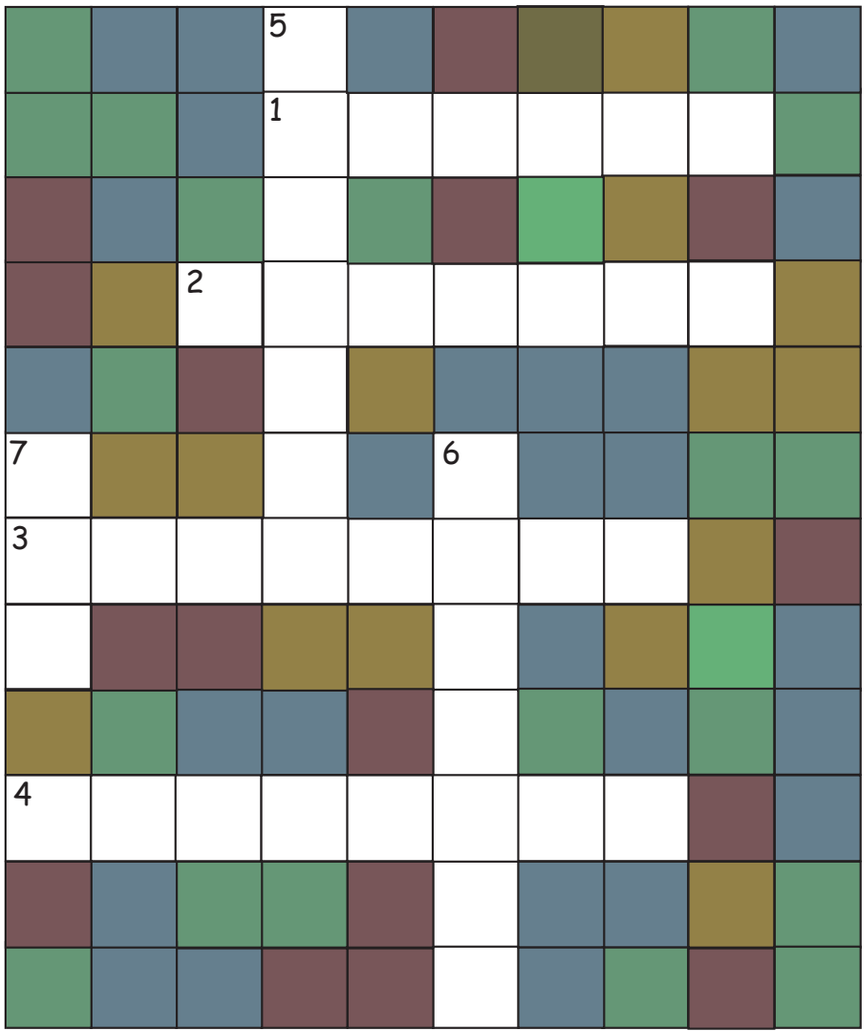
C) Kajal is writing a letter to her friend. Is her posture correct?



D) Rahul is drawing a picture. Is his posture correct?



5. Solve the crossword below.



Across

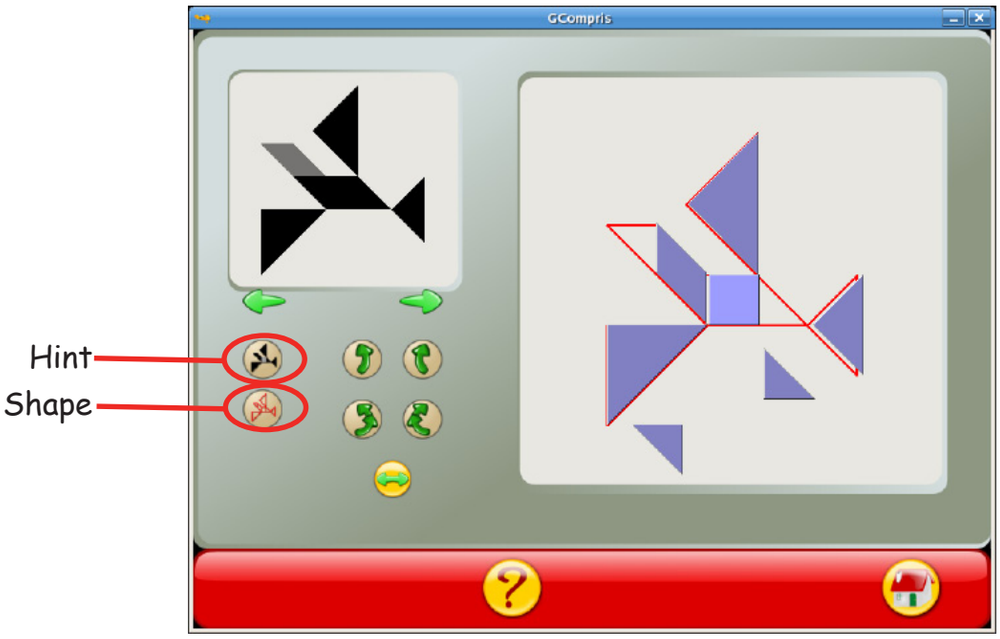
1. _____ devices allow us to receive information from the computer.
2. Making changes to the written text is called _____.
3. Each username on a computer has a secret key called the _____.
4. Do this to remain healthy: _____.

Down

5. _____ are used to organise files on a computer.
6. _____ is the sequence of actions done by the computer while starting.
7. _____ is the brain of the computer.

Open Educational suite GCompris and play the following games:

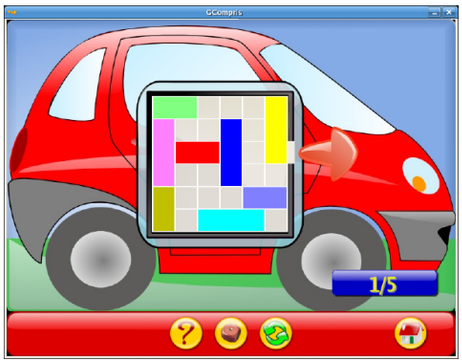
1. **Tangram puzzle game:** Create the figure on the left hand side with the given pieces on the right hand side. Click on the shape button, it will display the borders of the figure on the right hand side. The hint button gives the position of each piece, in the picture. Select the piece you want to move, then drag and drop it in the appropriate place.



2. Find the series of correct operations that matches the given answer. Work out the right combination of numbers and operations to match the given value.

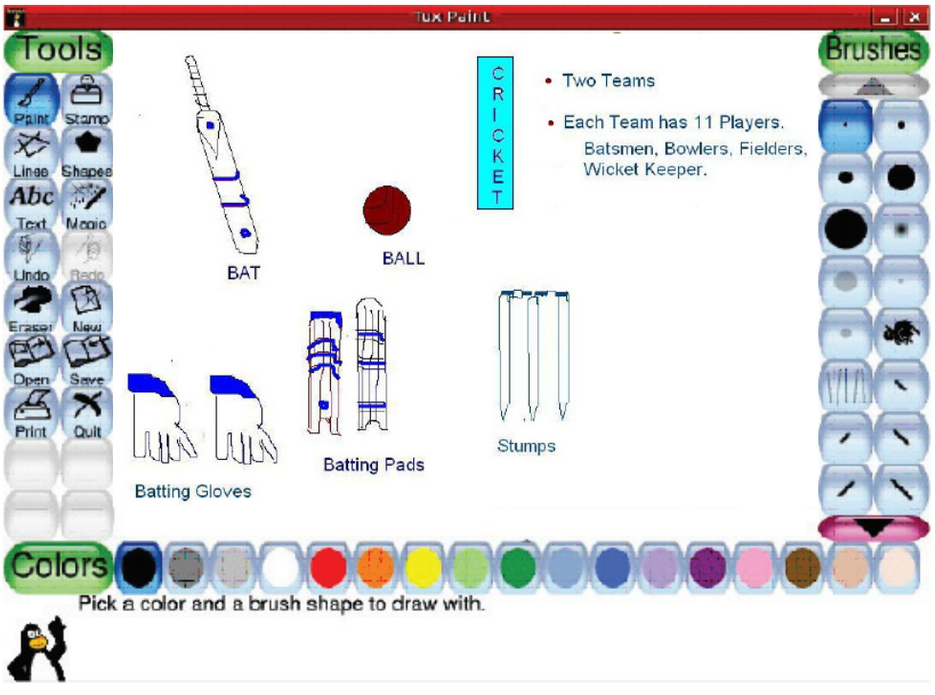


3. ***A sliding block puzzle game:*** Each block is a car. Each car can only move either horizontally or vertically. You must arrange the cars by moving them, in order to let the red car get through the open gate on the right.



Group Activity

a. **My favourite game:** Choose a game that you like to play. Find out about the game. For example, the number of players, objects used to play, size of the play ground, etc. Make a poster of the game using Tux paint. To do this activity, form groups of four or five students. Each group can work on one game. Search for the objects in the existing images. You may even draw these objects. Write the name of the game and the names of objects used to play the game (You may use any of the tools – magic, text, paint to write).



b. **Identify me:** Each student takes his/her hand print on a sheet of paper by dipping the hand in a water colour paint. Compare with the hand prints of others. Do you find any difference? Now try thumb prints. Did you know that fingerprints are used to uniquely identify a person? Find out what else is used to identify a person.



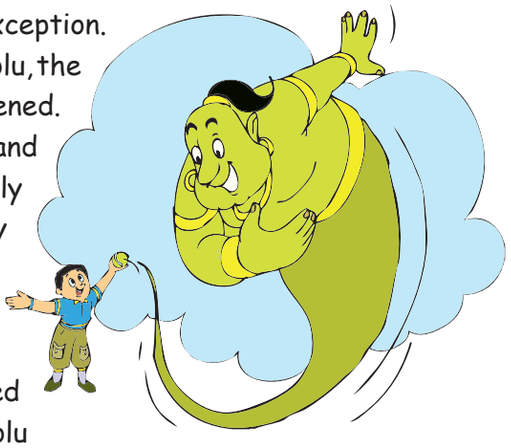
c. **Play passing the parcel:** All the students in the class can play the game. The student who is holding the parcel when the music stops should demonstrate an exercise. You can use the duster as the parcel and create music with the desk as the tabla! You can also use the computer to play music.



d. Read the story. Practice how to edit the text on the computer. You can change some words, for example change "chocolate" to "chips" or change the name of the boy. To do this activity form groups of two students each. Each student takes turn in pointing out some text to be edited and the other student carries out the action. Use all the editing options and have fun playing with the text. (The teacher writes the following story in text editor and gives it to the student to do the activity.)



Chocolate here, Chocolate there, Chocolate Chocolate everywhere



Everyone likes chocolates. But 8 year old Bholu is an exception. Bholu wanted chocolates all the time. His mother told Bholu, the bad effects of eating too many chocolates, but he never listened. One day his mother did not give him chocolates. Bholu was sad and began sulking. He started rolling a cricket ball in his hands. Suddenly a genie appeared and asked him to make a wish. Bholu immediately said "Whatever I touch should become a chocolate. Then I can eat chocolates all the time". The genie said "Wish granted".



Bholu wanted to test his wish. He touched his pencil and exclaimed "Wow! The pencil has turned into a chocolate!". Bholu went and touched everything around him. He got a chocolate sofa, a chocolate table, a chocolate door and so on. His happiness knew no bounds. His sister came running towards him and hugged him. His sister turned into a chocolate! Now, this is something Bholu did not expect. He wanted to drink some water. The water turned into chocolate. He ran here and there. He started crying. The alarm clock started ringing. He was scared to touch the clock. Then he suddenly heard his mother say, " Bholu, get up. You will be late for school". Bholu got up and was about to say, "Ma, do not touch me. You will become a chocolate." He touched one after other, the bedsheet, the table next to him and the door. He exclaimed " Thank God. It was a dream.". Bholu got up and did his morning chores. He ate the breakfast that his mother had prepared, and never demanded chocolates all the time again. He realized the importance of listening to his mother. He ate his favourite foods in small amounts and was not greedy ever again.

Project

Do project 1 given in lesson 7.



Explore!

1. What are the other activities that allow you to write text using a computer besides the text editor?
2. Try to give the same name to two files within a folder and check what happens. Explore how you can change the name of the file without opening the file.

Teacher's Corner

Level III
Lesson 1

- The first lesson of class III is a revision chapter. It is important that students completely learn the Level II contents before they start new topics. Ensure that you give adequate time to hands-on practise of what they have already learnt. You can take 2 to 3 periods for this lesson.

- Ask the students about the various activities that they did with computers. They will mention input-output devices, using text editor, starting the computer and entering the user name and password. Ask them what are the 'input' and 'output' devices of the computer. Summarize the discussion by briefly mentioning how each part plays an important role.

- Revise how to start a computer session and ask a student to demonstrate it to the class. Emphasize the importance of 'username' and 'password' and that it is essential to enter them correctly.

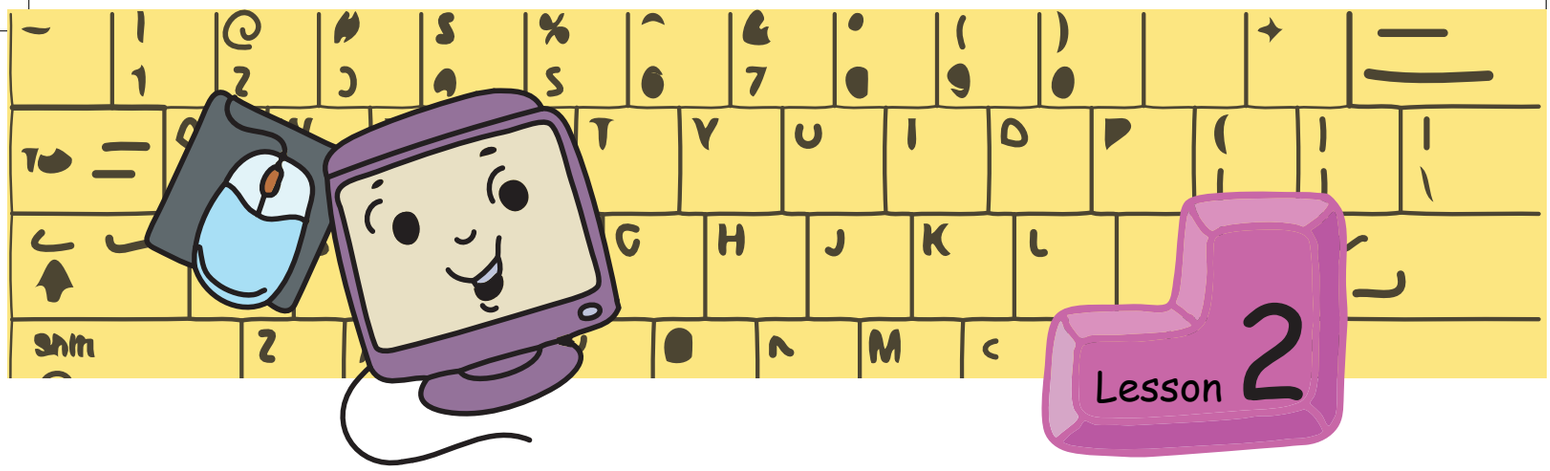
- Revise the various exercises they learnt, to keep fit while using the computers. Ask the students to demonstrate these in the class. Emphasize the importance of keeping the computers clean, avoiding food/drinks near the computers and sharing computers with each other.

- Ask the students to look at the icons of the desktop and identify 'folder' and 'activity' icons. Revise the functions of the 'folder' and how it helps to organise the files on the computer.

- Open a text editor and revise the various 'edit' functions. Give a short assignment (such as typing a story) to the students that allows them to practise the uses of various keys (Caps Lock/Backspace/Delete/Navigational). Tell them that they will learn how to colour the text and use different fonts this year. Note that word processor allows students to enter and edit text similar to text editor.

- Repeat some of the fun activities from last year such as, Passing the parcel. All the students can play the game of passing the parcel. The student who holds the parcel when the music stops should demonstrate an exercise.

Further Reading :
http://www.gamequarium.com/
http://www.sciencenewsforkids.org/



Lesson 2

Step-wise Thinking

Aim

In this lesson you will learn:
A step by step planning of any activity.
To identify the main and detailed sequence of steps of any activity.
To follow step-wise instructions for any activity.



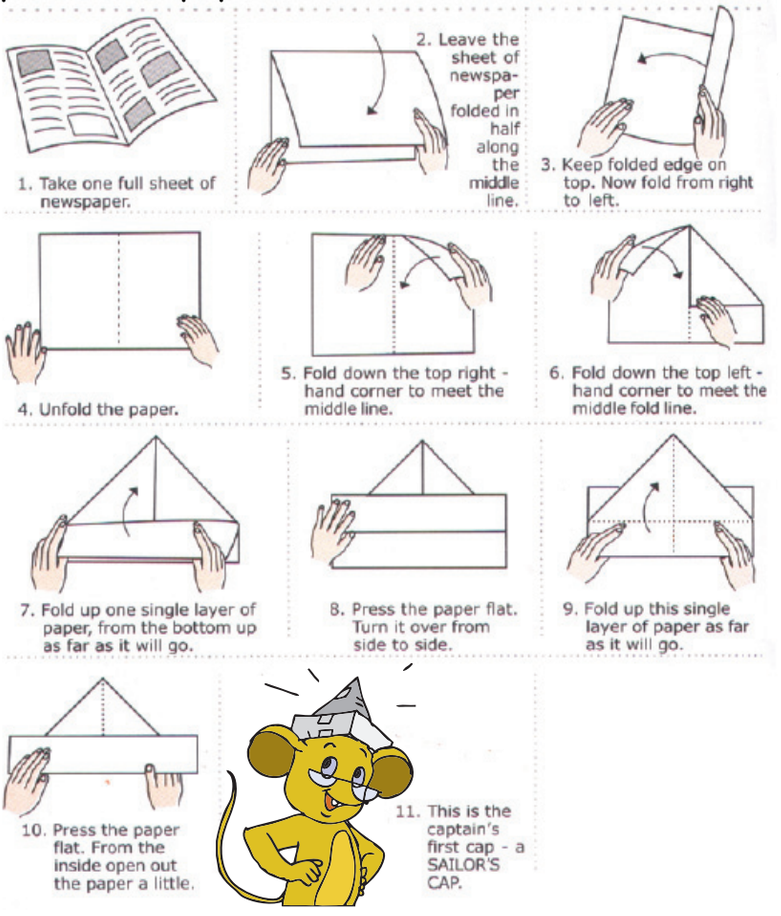
Tejas and Jyoti are making various objects with paper when Moz walks in.

Moz: This is interesting. Please show me how to make the cap that you are wearing.

Jyoti: The cap can be made by folding the paper. Paper folding is called origami.

Tejas gives the step-wise instructions shown below. Moz makes a cap with the paper.



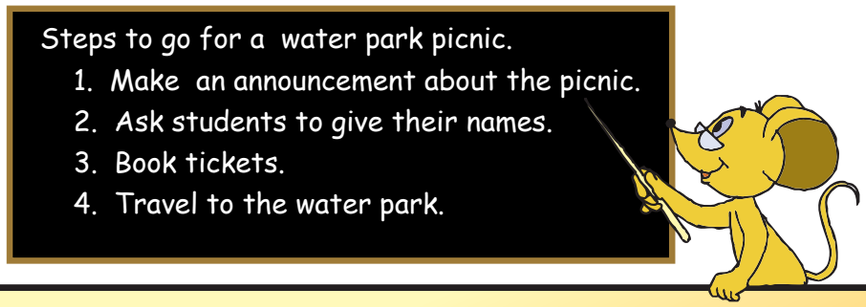




Moz: Thanks. The step-wise instructions really helped in making the cap. Did you know that we often use such step-wise thinking in many activities?

Jyoti: How?

Moz: Let us plan a picnic to the water park. What should we do?
Jyoti: Book tickets and go.
Moz: Is it possible to book tickets before collecting the names of those who would like to go?
Tejas: No, because we do not know how many tickets to buy.
Moz: Right. So what should be the steps for the activity?



CONCEPTS

Every activity has a sequence of steps that need to be followed.

Moz: Let us now look at another example.
Tejas: Moz, We are participating in a play. Shall we look at the steps of this activity?
Moz: Yes. Let us list them.
Moz writes the steps as Tejas and Jyoti list them.

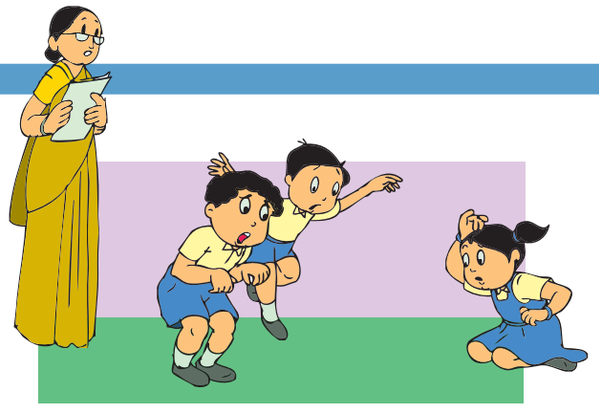
Tejas: Teacher told us about the play. In the play there are fifteen types of animals.
Step 1: Narration of the play.



Jyoti: The children who wanted to act in the play gave their names to the teacher.
Step 2: Collect the names of children who want to act in the play.

Tejas: The teacher assigned each one of us the role that we will play.
Step 3: Assign roles to the children.

Jyoti: We went to practise for the play. The teacher made us act out one scene after the other. She also helped us in doing our actions correctly. We practiced everyday for half an hour.





Step 4: Practise the play with the teacher's help regularly.

Tejas: The teacher gave a list of names of children and their roles to the costume supplier. The costume supplier took our measurements.

Step 5: Prepare a list with names of children and their roles, to be given to the costume supplier.

Step 6: Costume supplier takes measurements for the costumes of children.

Jyoti: Two days before the play we got our costumes. Then we were told to wear and check the costumes.

Step 7: Wear and check the costumes received, prior to the performance of the play.

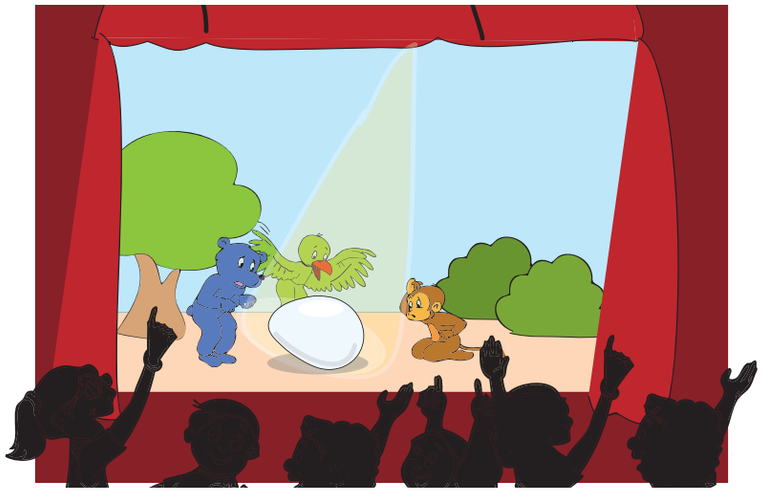
Jyoti: Our final reharsal was a dress reharsal which was today!

Step 8: Do a dress rehearsal.

Moz: That was a good example. But you missed the last step!

Jyoti: Oh! The last step is our performance of the play on stage, before our parents, teachers and friends.

Step 9: Perform the play.



Moz: Suppose you have to describe the activity in 3 steps. What are they?

Tejas and Jyoti discuss and write the three steps.

Step 1 - Prepare for the play.
Step 2 - Practise the play.
Step 3 - Perform the play.

Moz: Very good. Now list the previous 9 steps under each of these 3 steps.

Tejas and Jyoti take each detailed step and list it under the appropriate main step.

Prepare for the play

Step 1: Narration of the play.
Step 2: Collect the names of children who want to act in the play.
Step 3: Assign roles to the children.
Step 4: Prepare a list with names of children and their roles, to be given to the costume supplier.
Step 5: Costume supplier takes measurements for the costumes of children.

Practice the play

Step 6: Practise the play with the teacher's help regularly.
Step 7: Wear and check the costumes, a few days prior to the performance of the play.
Step 8: Do a dress rehearsal.

Perform the play

Step 9: Perform the play on stage, before parents, teachers and friends.

Moz: Good. Now, can you give more details for "Perform the play".
Jyoti: First, reach the hall on time.
Tejas: Then, wear the costumes and put on the makeup.
Jyoti: Finally, perform the play as practiced.



Moz: Good. What you have done is:

1. Listed the various steps of an activity.
2. Identified the main steps of the activity.
3. Listed the detailed steps under each main step of the activity.

Moz: Now let us take another task and first list the main steps. The task is to get the pen that is on the table and give it to me. Give the three main steps for this task.

Tejas and Jyoti demonstrate their understanding of the main steps that are required for the task.

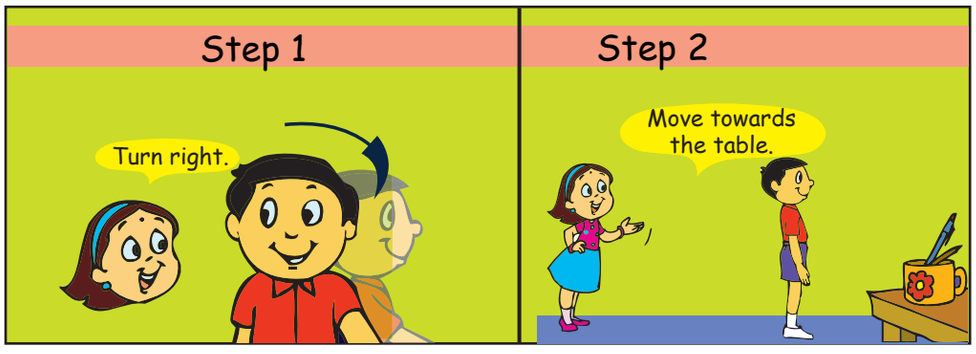
Steps to pick up the pen and give it to Moz.



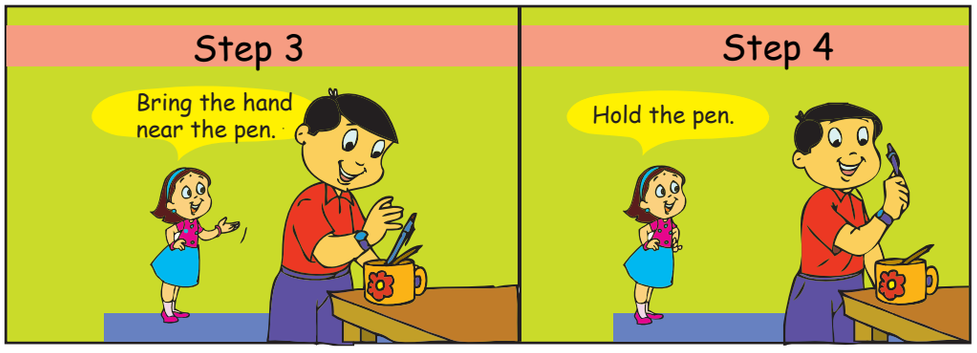
Move to the table. Pick up the pen. Give the pen to Moz.

Moz: Now I will make it a little bit more difficult. Give more detailed steps for each of these three steps.

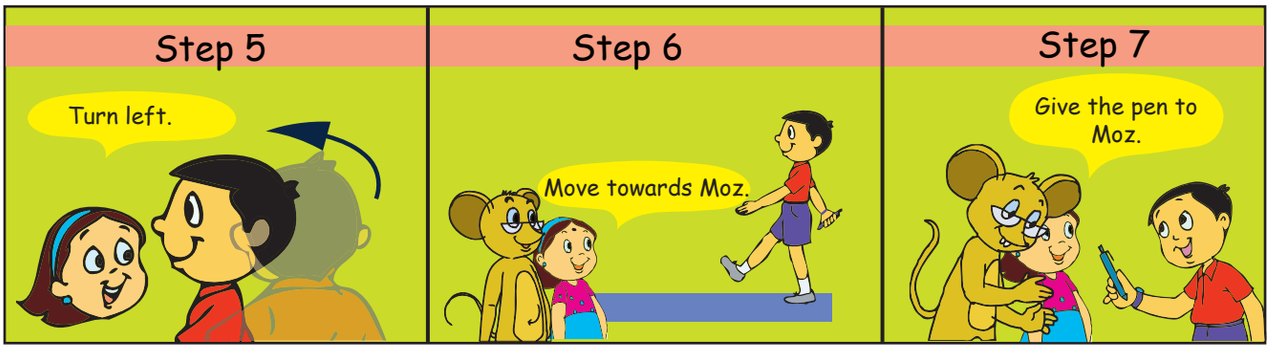
Jyoti: I will give the steps for **"Move to the table"**.



Jyoti: Here are the steps to **"Pick up the pen"**.



Moz: Good. Now outline the steps to **"Give the pen to me"**.



Moz: Good.

CONCEPTS

- Any activity has a sequence of steps.
- First list the main steps of the activity.
- Then, for each main step, list the detailed steps.
- Listing the steps helps in carrying out the activity easily.

Moz: Can you change the sequence of steps in this activity?
Tejas: No, we cannot. Unless we walk to the table we cannot pick up the pen.
Jyoti: Only after picking the pen can we give it to Moz.

CONCEPTS

In some activities the sequence or order of the steps cannot be changed.

Moz: Correct. Now let us look at another activity.

Moz brings out an aeroplane making kit.

Moz: Will you please join the different parts to make an aeroplane for me?
Tejas and Jyoti: Oh yes!



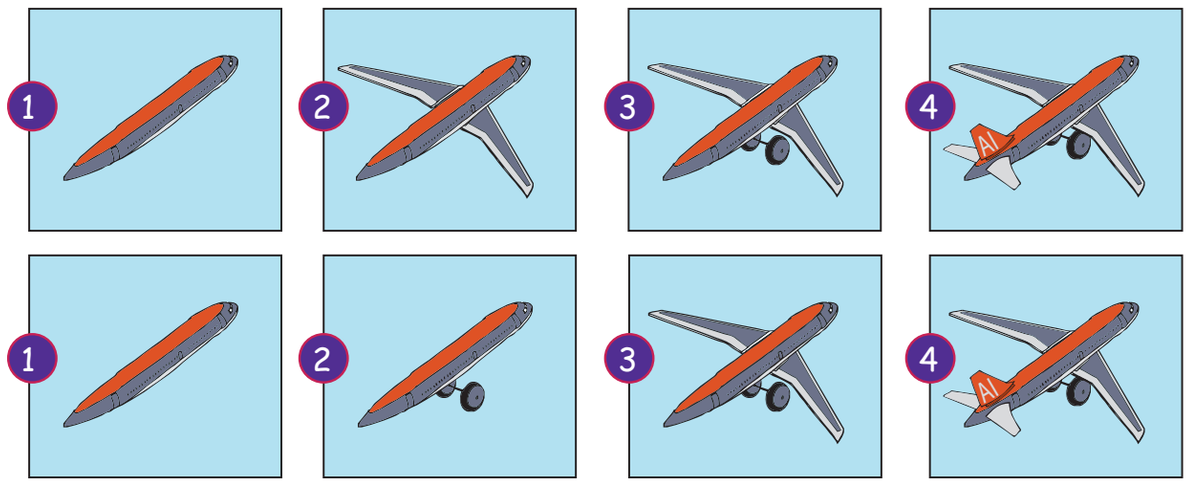
Jyoti and Tejas take the parts and the instruction sheet from the box. They read the instructions and make the aeroplane using the various parts given in the kit.

Tejas: The wings, wheels and tail have to be attached to the body of the aeroplane.

Jyoti: These parts can be assembled in any order. We can attach the wheels first, or we can attach the wings first.

CONCEPTS

In some activities the sequence of some of the steps can be interchanged.

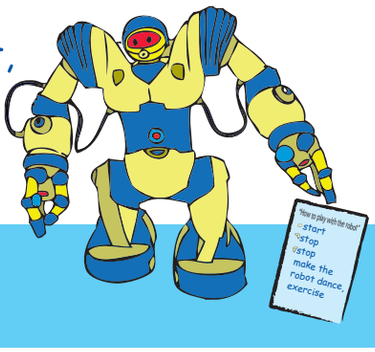


Moz: Now, let us look at a toy which can do some tasks. Here is a robot.

Tejas picks up the robot and examines it.

Tejas: It has a remote controller and an instruction sheet.

Jyoti reads the sheet which has step-wise instructions to start the robot and the instructions on "How to play with the robot".



Jyoti: The remote controller has buttons to start, stop and also move the robot in any of four directions.



Tejas (tries out the buttons): Each button has an action. When I press "walk" it keeps walking and does not stop even if there is a wall. We have to press "stop" and only then it stops.

Moz: The robot understands only a limited number of actions.

Jyoti: That means the robot cannot do anything on its own. We have to give it the detailed steps.

Moz: Using the limited number of instructions you can make the robot do some tasks.

Jyoti: Can a computer do an activity on its own?

Moz: No, it cannot. Similar to a robot, a computer needs detailed step by step instructions from us.

Jyoti: Oh! If we want to build a game of our own on the computer then we have to give all the detailed steps.

CONCEPTS

A computer can only work using step by step instructions from us.

Moz: You are right. Giving these step-by-step instructions is called **Programming**. You will learn more about it as we go along.

Chin Chinaki...

Learning Outcome

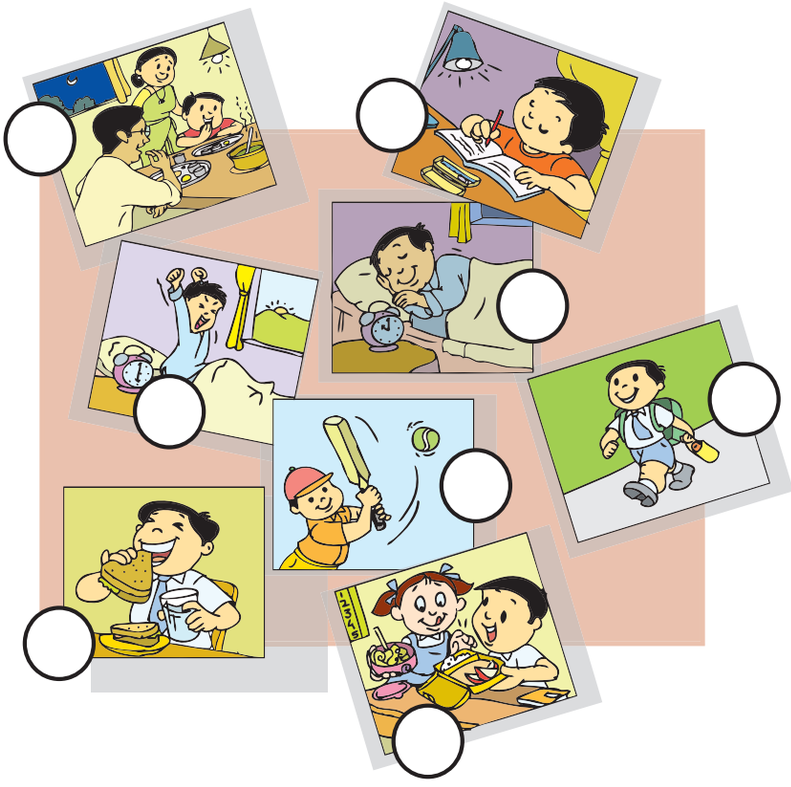
After you have studied this lesson, you will be able to:

- Divide a task into a sequence of step-wise activities.
- Identify main and detailed steps of an activity.
- Identify in which activities the sequences of steps can be changed and in which it cannot be changed.

WORKSHEETS



1. Number the pictures in order, from the beginning of the day. Check with your friends if they have numbered the pictures in the same order. (Note: There can be more than one correct order.)

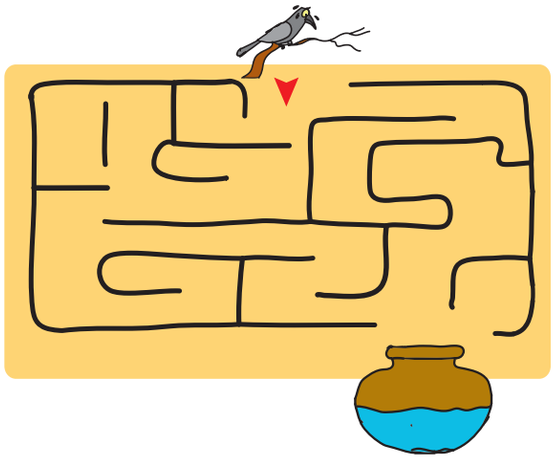


2. Here are some day to day activities you do every morning before going to the school. Number them in order. (Note: There can be more than one correct order.)

◯	Wear your shoes, say bye to everyone and go to your school!
◯	Eat breakfast and talk to your family members.
◯	Take bath and wear your uniforms.
◯	Get up with a smile, see everyone in the house and brush your teeth.
◯	Drink a glass of milk.
◯	Make sure all your books are in your bag.

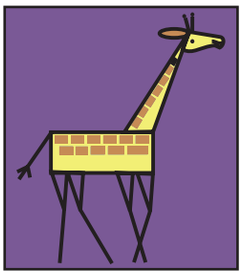


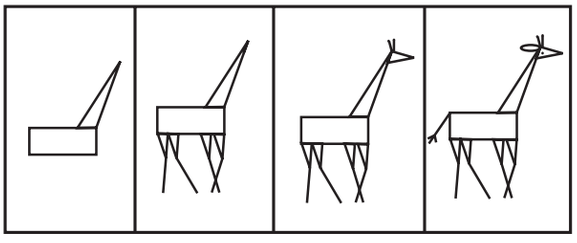
3. Help the thirsty crow reach the water.



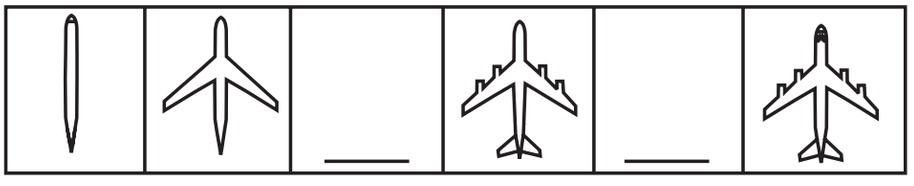
4. A whole picture might look difficult but it can easily be made in steps.

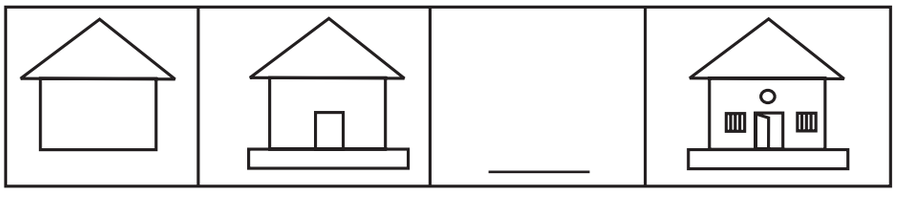
Example: Step by step drawing a Giraffe.

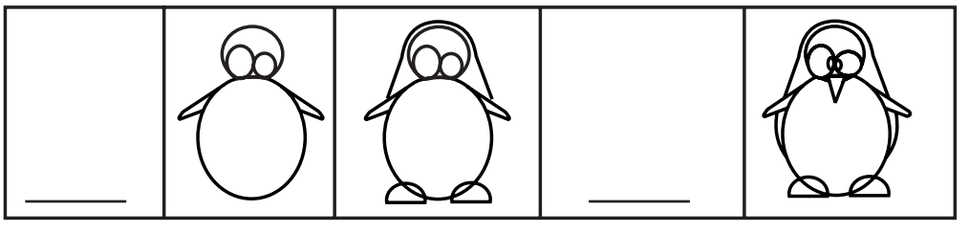




Fill in the missing steps of the following drawings:

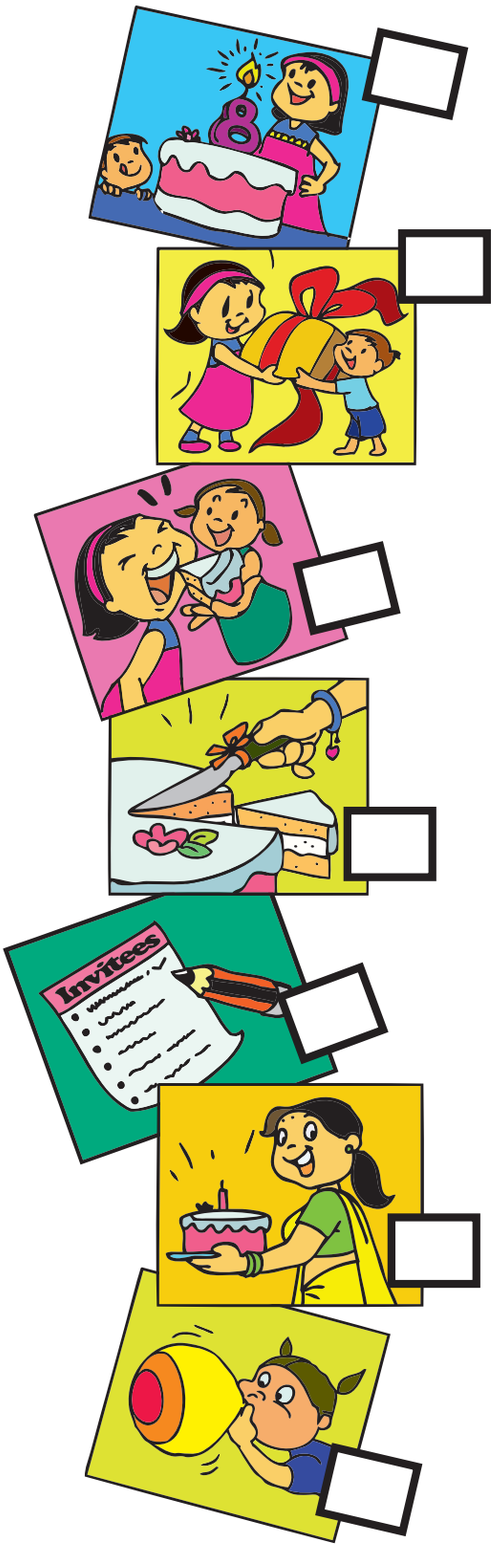






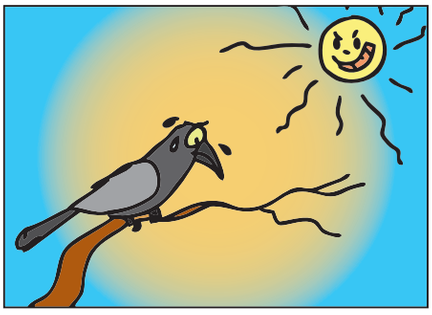


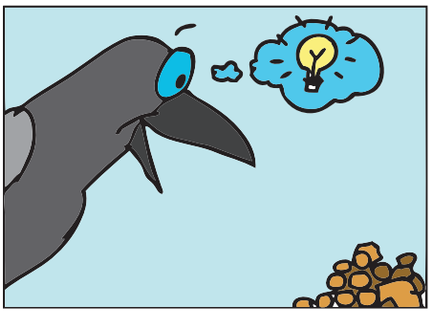
5. **Neha is celebrating her birthday. Number the pictures in order. Check with your friends if they have numbered the pictures in the same order. (Note: There can be more than one correct order.)**

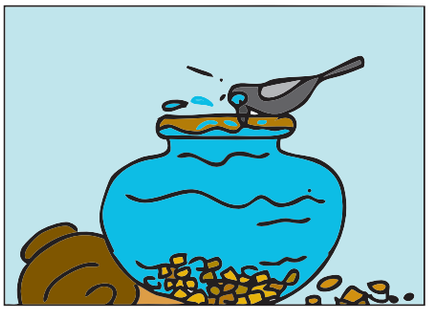




6. We all know the story of the thirsty crow. The pictures given here are jumbled, number them properly. Check with your friends if they have the same order.

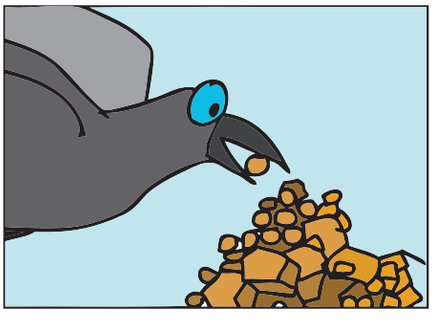




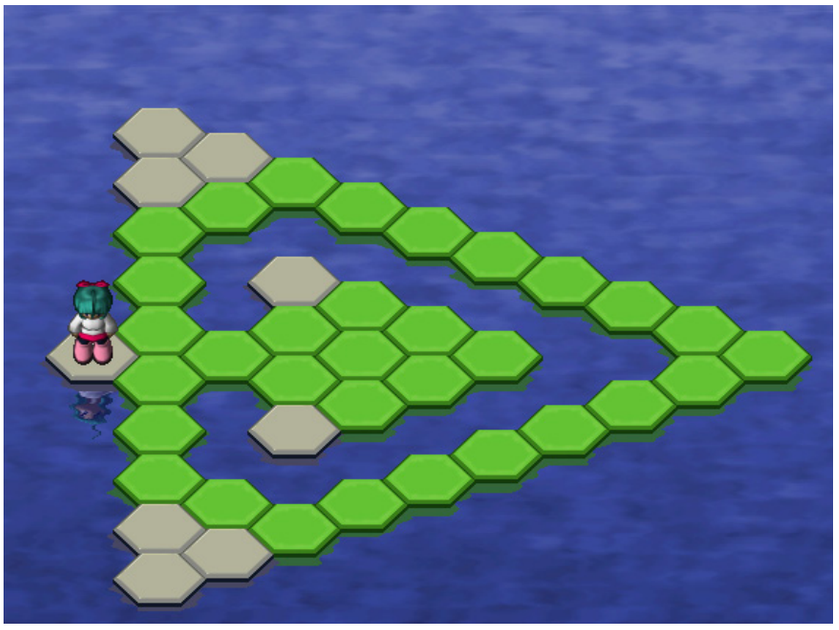




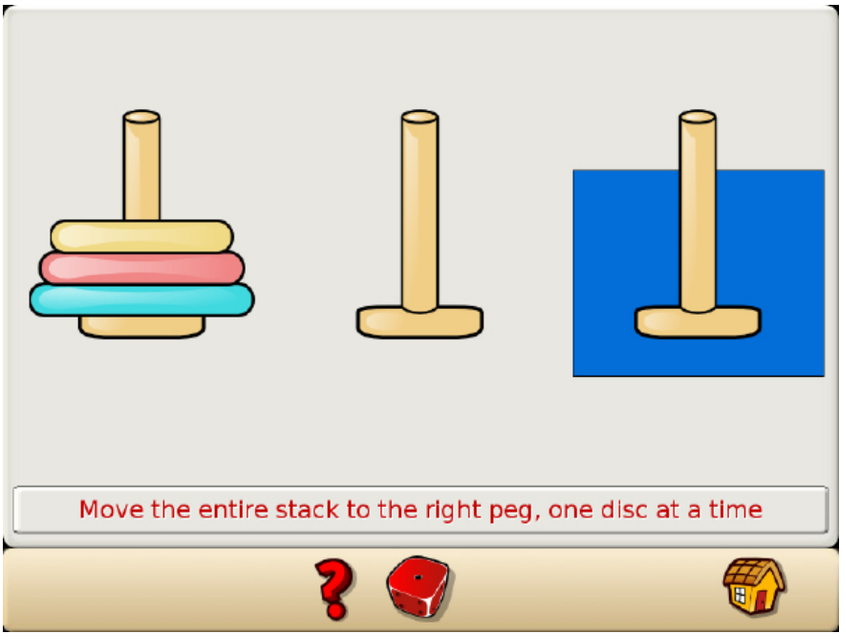




1. **Hex a hop:** Your goal is to break all the green tiles by jumping on them. They will crack when you land on them and break when you jump off. Click on the tile you would like to move to, use the backspace key to undo a mistake. You should avoid getting trapped or jumping in the water.



2. **Tower of Hanoi:** Drag and Drop the top pieces from one peg to another, to reproduce the tower on the left in the empty space on the right. You have to follow these rules:
 1. Only one disc may be moved at a time.
 2. No disc may be placed on top of a smaller disc.



Group Activity

a. Divide the class into 2 groups, One group names an activity and the other group specifies the steps of that activity. For example, one group gives the task of drawing a portrait. The second group lists the steps required to draw it. The roles are reversed in the next round. Following this, discuss if the sequence of the steps can be changed or not.

b. **Act like a robot:** Divide the class into groups of five students each. In each group one member acts as a robot and the other members give the instructions to do the activity. Some of the activities that can be given are i) collect the ball in a box. ii) do the exercises for hands and wrists iii) get a glass of water.



Project

Do project 2 given in lesson 7.



Explore!

1. What are the main steps of constructing a building?
2. List some tasks in which the sequence of steps does not matter.

- This module can be conducted in the classroom, or if possible, take the students to the playground. This will raise the energy levels in the students. You can play a game with them, such as fire in the mountain. Then gather them together and ask them what steps they followed to play the game. You may take them to the classroom and continue the module. Alternatively, you can give students craft paper and ask them to make a boat. Later ask them what steps they followed to make their paper boats.

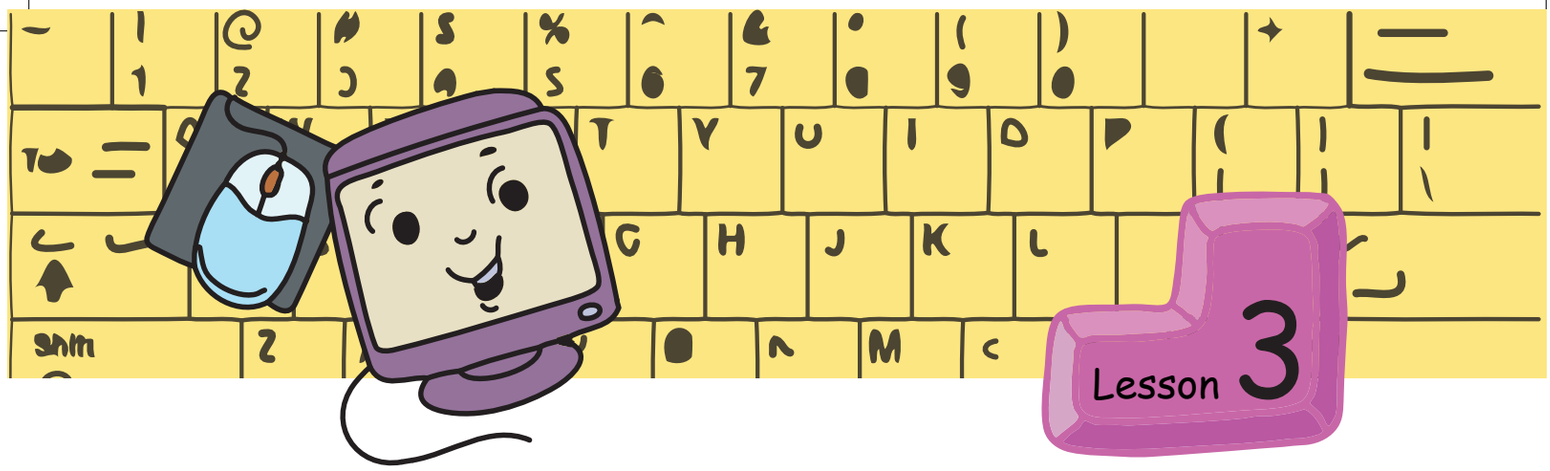
- Ask them to give other examples where they follow steps to do the activity. Give them examples to explain that any activity involves different steps to be followed. For instance, ask them to plan a birthday party for their classmate. What steps are involved? Ask them to arrange all the steps they need to do, in proper sequence, so that the party turns out to be well-organized. Ask them to identify the main steps and list detailed steps.

- Give them an assignment of making a daily timetable, so that they divide their time spent in school, study, play, sleep, eating, etc. Ask them whether they can change the sequence of the activities.

- Ask the students to narrate their experience of using a remote control to watch television. They will mention pressing particular numbers to play a particular channel, sound buttons to change the volume level and so on. Now discuss how the remote control functions and relate it to the different tools on the computer. You can also ask them to narrate their experience of playing a remote controlled game.

- Emphasize that often we do activities without realising the different steps which we follow. However, if the same action has to be done by a computer, it will require detailed instructions. Tell the students that a computer cannot think on its own. A computer can only work using step by step instructions from us.

Further Reading :
http://www.exploratorium.edu/explore/online.html



Lesson 3

Introduction to Scratch

Aim

In this lesson you will learn:
How to program using Scratch.
Usage of commands in Scratch under 'motion', 'pen' and 'sound' blocks.



Moz: Marathi and Malayalam. Good to see that you are learning more languages.

Tejas: Moz, does the computer understand the languages that we speak?

Moz: No. It understands only a few special languages of its own. These are called programming languages. Also, the number of words and the sentences that it understands are limited.

Jyoti: Can you explain how?

Moz: Yes. Suppose Tejas understands only the following 5 statements.

1. Move forward N steps, (N can be any number from 1 to 100).
2. Change direction to North.
3. Change direction to South.
4. Change direction to East.
5. Change direction to West.

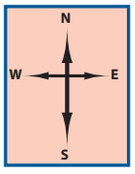
Use these instructions to make Tejas do an activity.

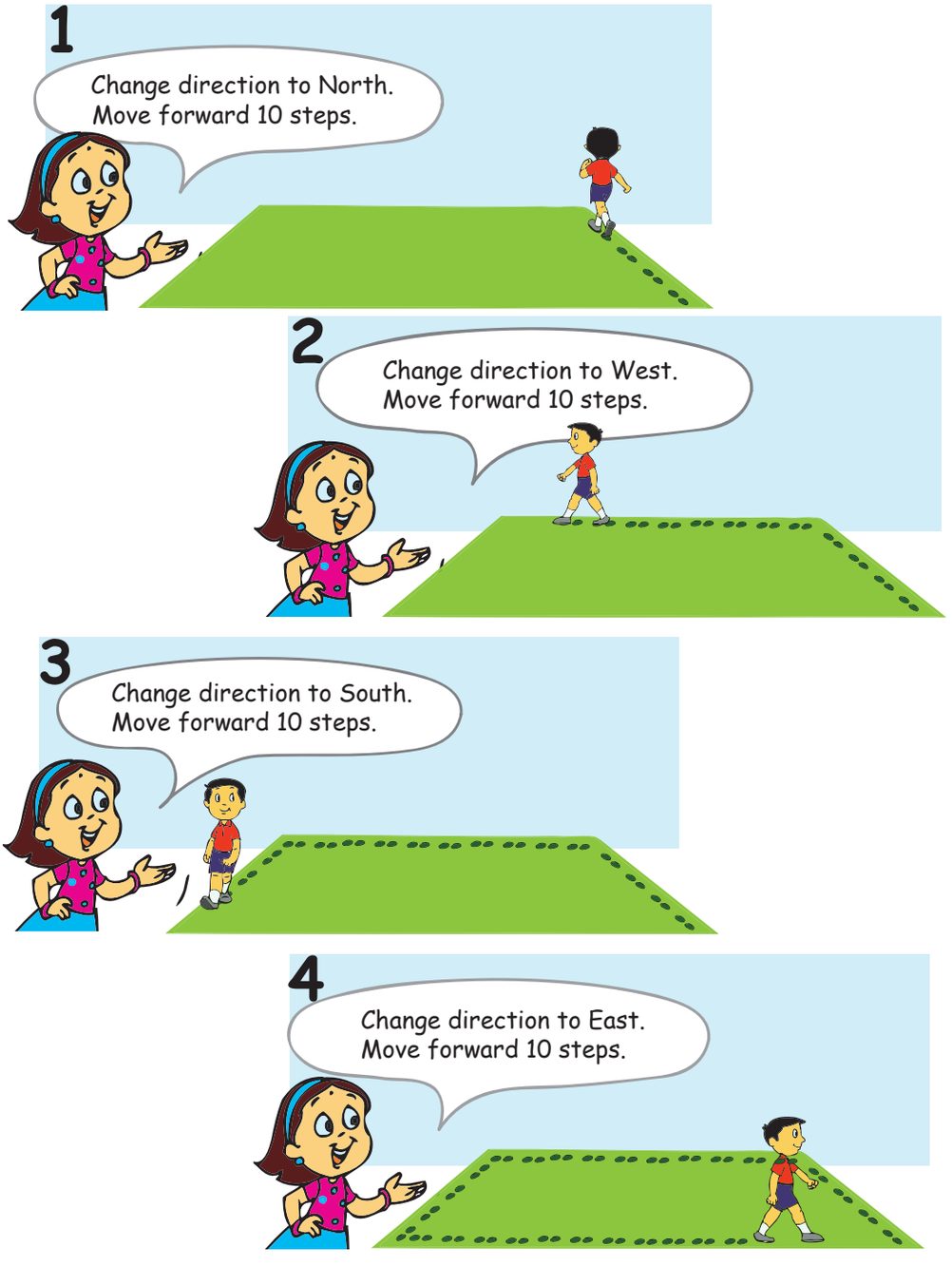
Tejas and Jyoti: Ok.

Tejas and Jyoti first discuss the limited instructions that they have. They decide on an activity for Tejas - **"Drawing a square"**. They write a sequence of step by step instructions, for the activity.

1. Turn to your left.
2. Take 10 steps from where you are in a straight line.
3. Turn to your left.
4. Take 10 steps from where you are in a straight line.
5. Turn to your left.
6. Take 10 steps from where you are in a straight line.
7. Turn to your left.
8. Take 10 steps from where you are in a straight line.

Then they convert these movements into the limited instructions. Jyoti gives Tejas the instructions. Tejas holds down a chalk piece to see what happens with the limited instructions.





Jyoti: Look at the square which shows Tejas's trail!
Tejas: Oh! So for any activity that we want the computer to do, we have to give instructions, step by step.
Moz: Yes. Just like you have done now. First plan the activity step by step and convert it to a computer program using the limited instructions.

CONCEPTS

A programming language has a set of instructions. Using these limited instructions you can make the computer do an activity that you plan.

Tejas: Which activity do we use to give the instructions?

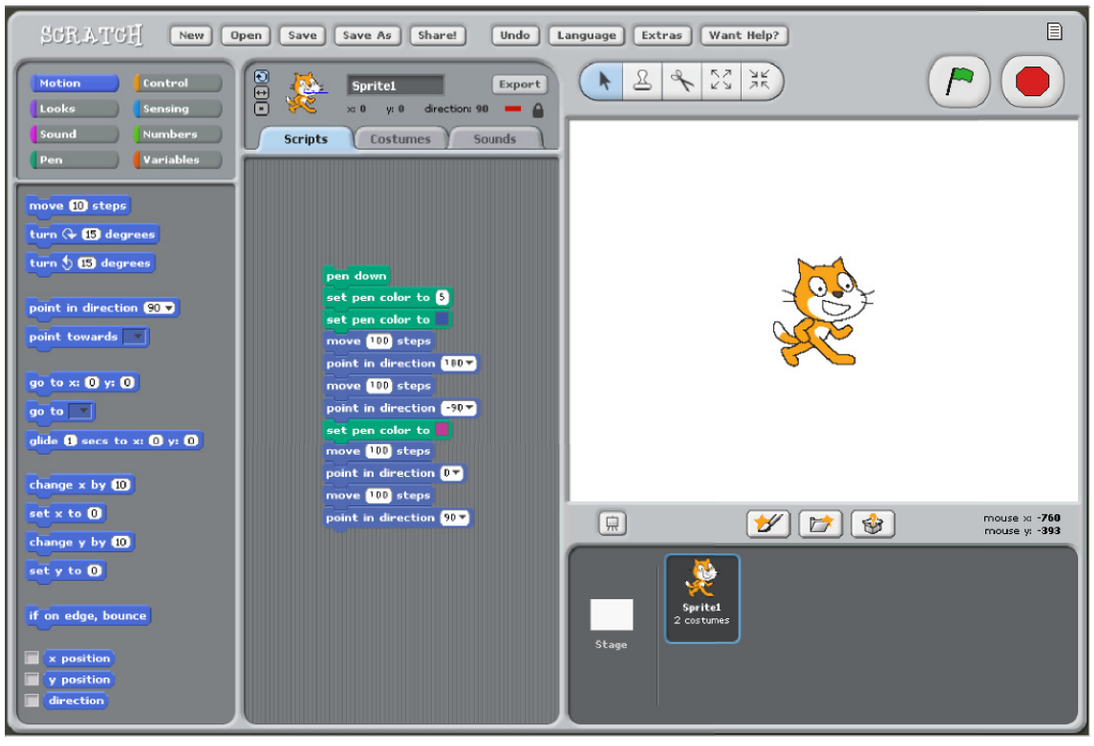


Moz: Scratch is an activity which you can use to give instructions that the computer understands. You will see that these instructions are similar to those above, given to Tejas by Jyoti. Such a sequence of instructions is called a Program.

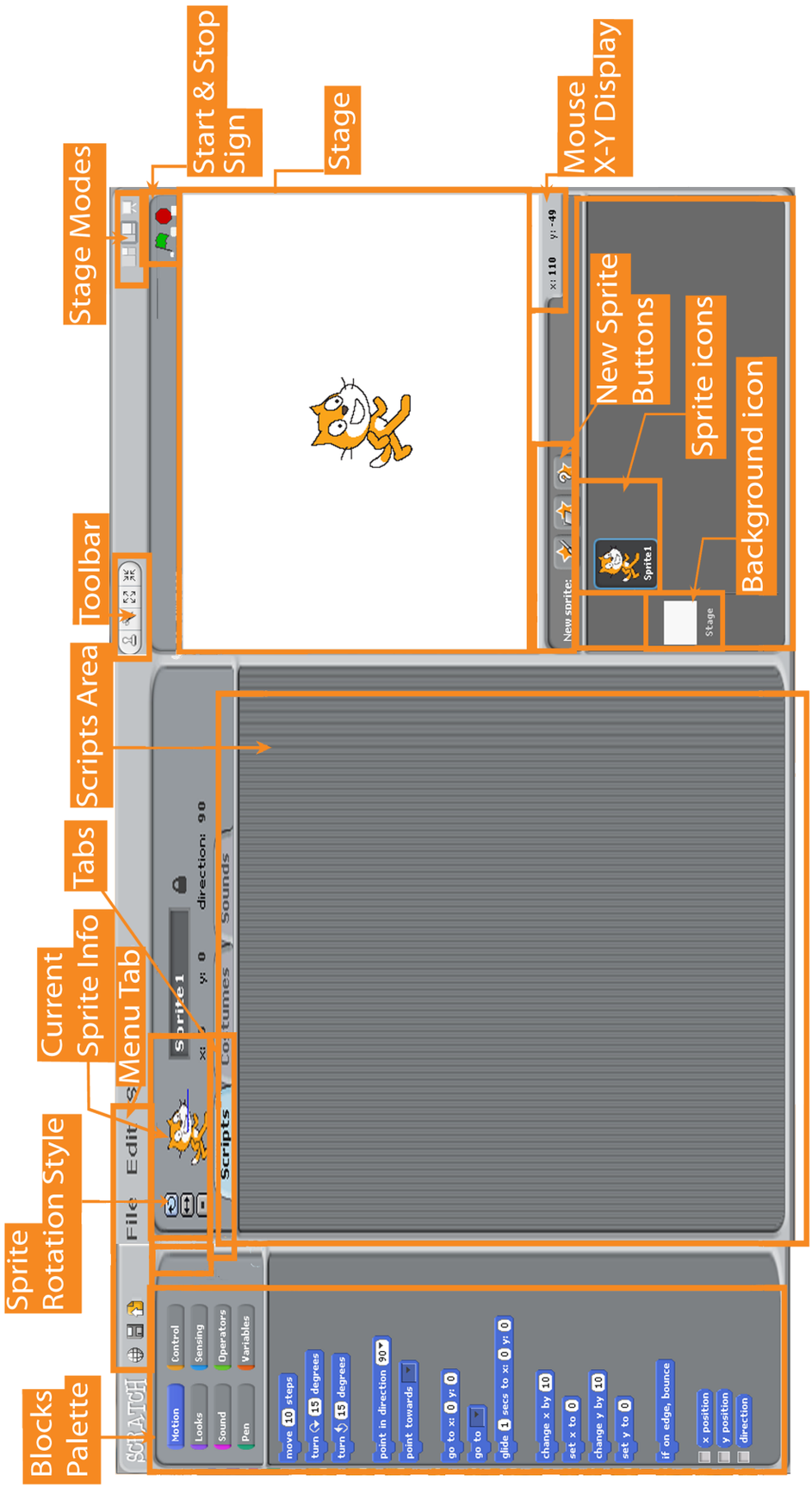
CONCEPTS

Sequence of instructions given to computer is called a Program. In Scratch, a program is saved as a Project.

Moz opens Scratch and writes a program to draw a square.

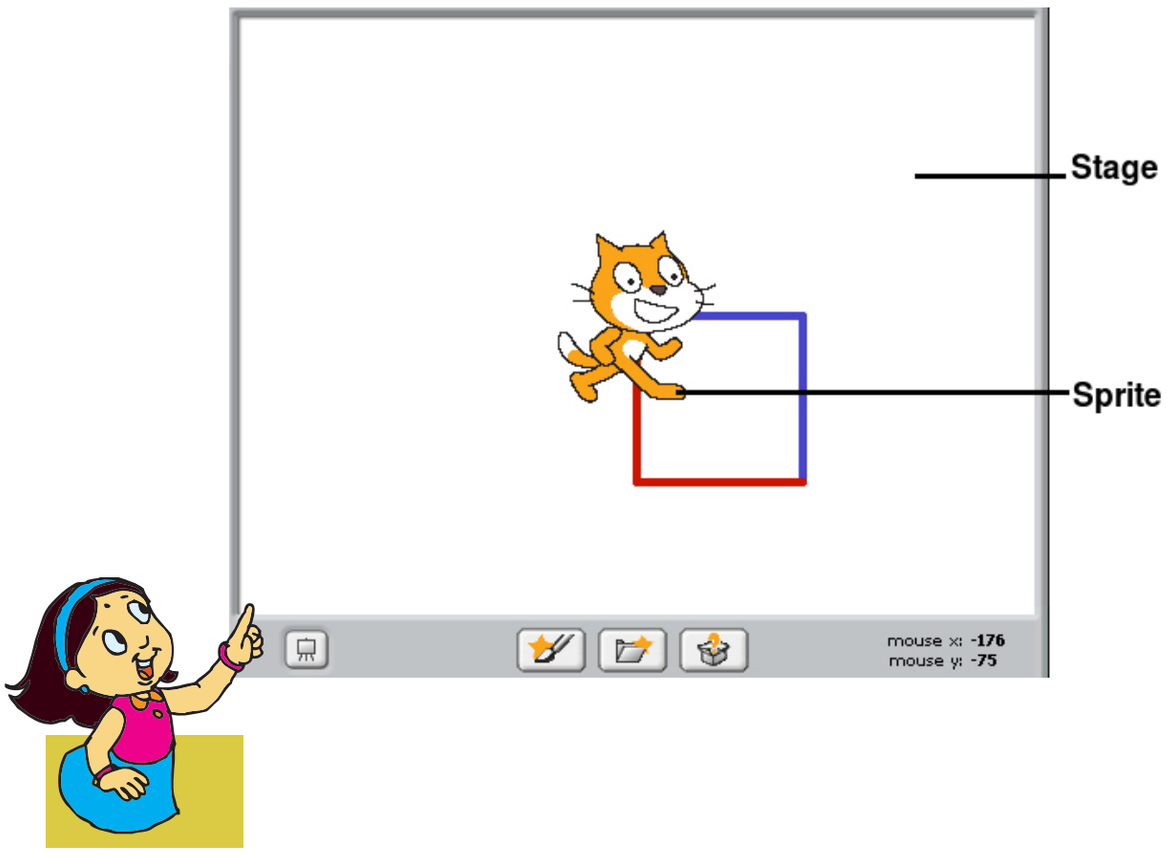


Scratch Interface



Jyoti: Moz, How do we make the computer follow these instructions?
Moz double clicks on block of instructions. The cat moves and a square is drawn.

Jyoti: Oh! Look the cat is moving and a trail of the cat is shown.

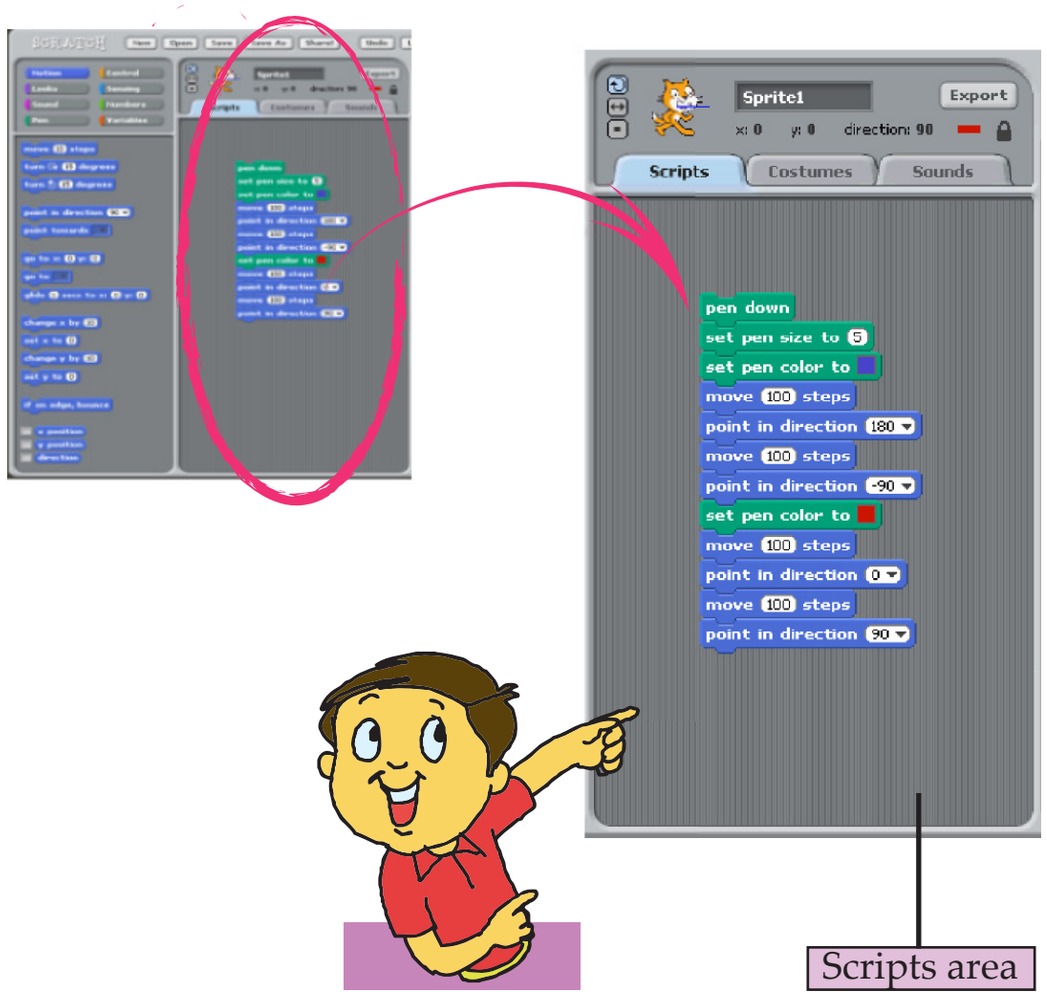


Moz: Yes. In Scratch, each picture like this cat is called a Sprite.

Moz [points to the stage area]: This area where the Sprite moves is called the stage. The computer follows the step by step instructions to give the output.

Stage
The Stage is where you see your stories, games, and animations come to life.

Info



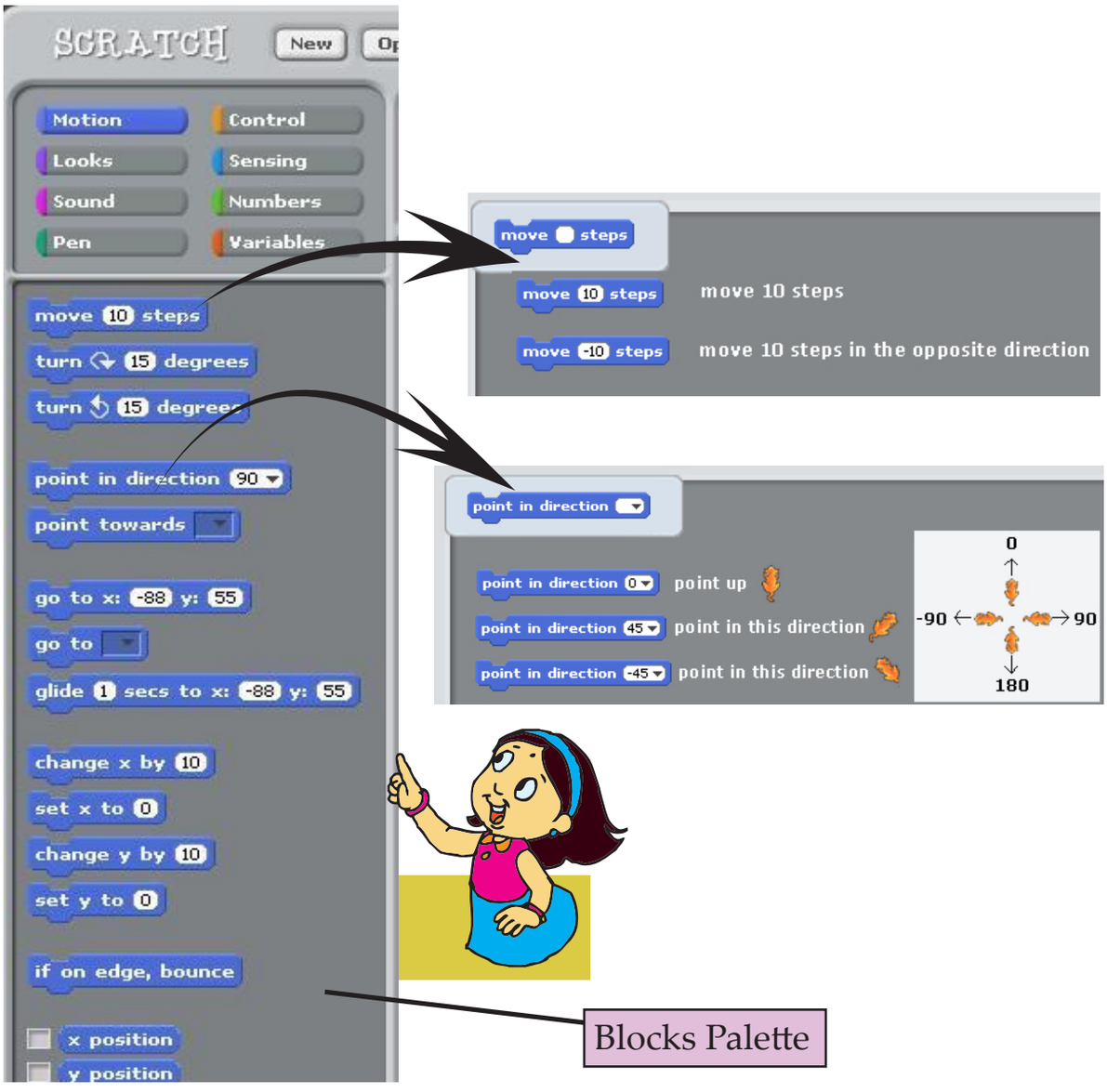
Tejas: Is this where we write the instructions?
Moz: Correct. This is called Scripts area. The sequence of step by step instructions are given here.
Jyoti: And the Sprite performs all the instructions step by step on the Stage!
Moz: Yes. This is called running the program.

CONCEPTS

A computer carries out the instructions of a program, one by one in the given sequence. This is called running or execution of a program.

Scripts area
Script is the set of step wise instructions that you give to the Sprite to do a particular task. Scripts area is the place where you write the Script for the Sprite. Script is also called a program. Each instruction is also called a command.

Info



Jyoti (points to the Blocks Palette): Are these the instructions that the computer understands?
Moz: Yes. Notice that there are many ways to make the Sprite move and turn.

Tejas: All the movement related instructions are listed when we select the Motion Block.
Moz: Good observation. Related instructions are grouped together in a Block. You can find the various types of instructions in the Blocks Palette.

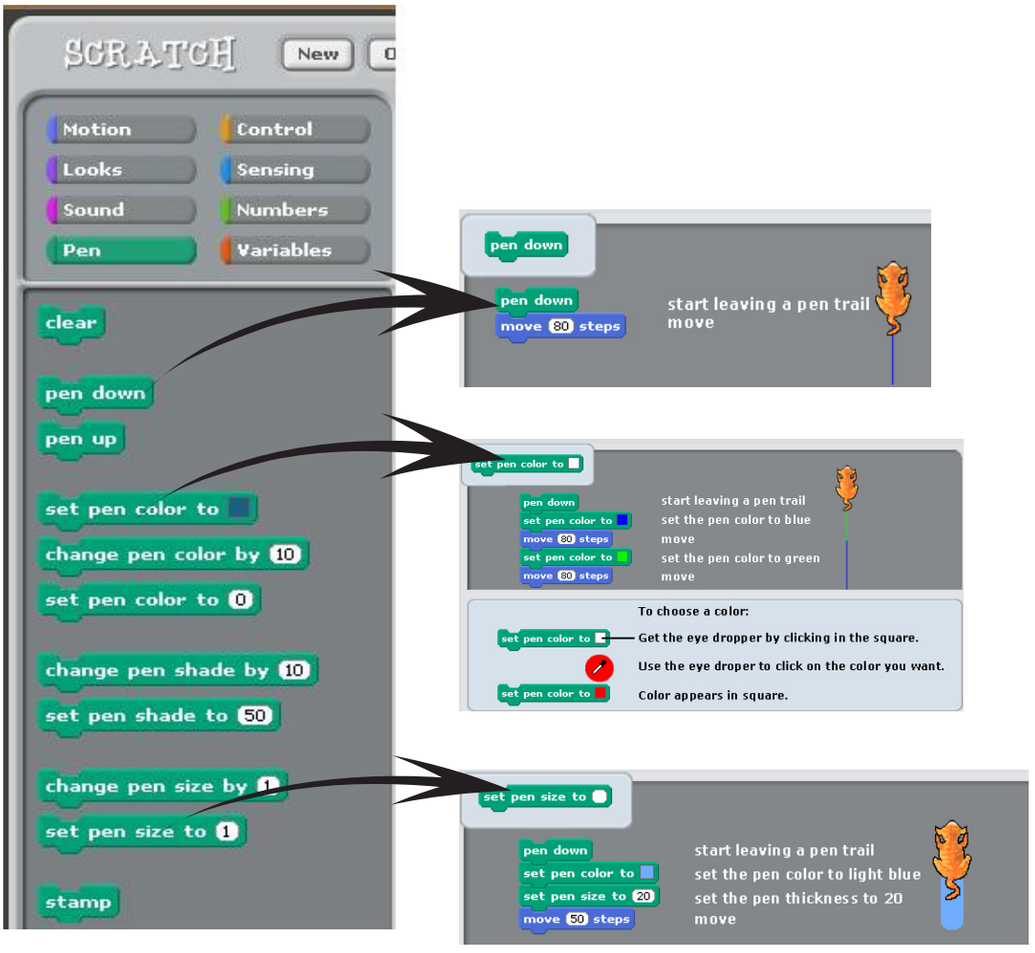
Motion block has instructions to make the Sprite move, such as number of steps to take, direction of motion, etc.,

SKILLS

Jyoti: There is no "pen down" instruction here.

Jyoti (points to the Pen Block): Let me click on pen and see what happens.





Jyoti: Oh! This is just like Paint. Each option gives a different set of instructions. All the pen related instructions are grouped together here.

Pen Block has instructions to provide the trail of the Sprite, to change the colour of the trail etc.

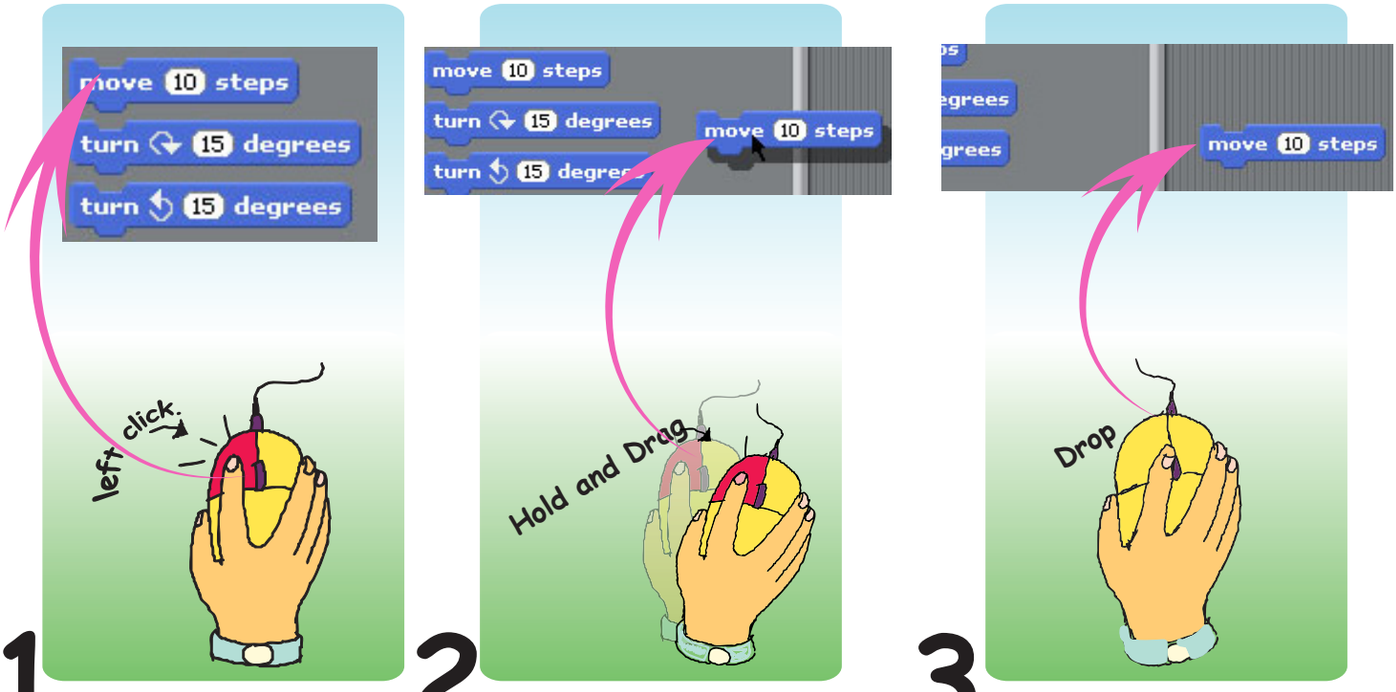
SKILLS

Moz: You can drag the instructions from the Blocks Palette and drop it in the Scripts area, to write a program in Scratch.

Drag the instructions from Blocks Palette and drop it in the Scripts area to write a program.

Info

Tejas: Jyoti, let us try **'drag and drop'** to put the instructions in the Scripts area.



1 Select the command to be moved

2 Drag the command to the Scripts area

3 Drop into the Scripts area

Jyoti: This is good. And when we bring one instruction below another, it pastes itself to form a block.

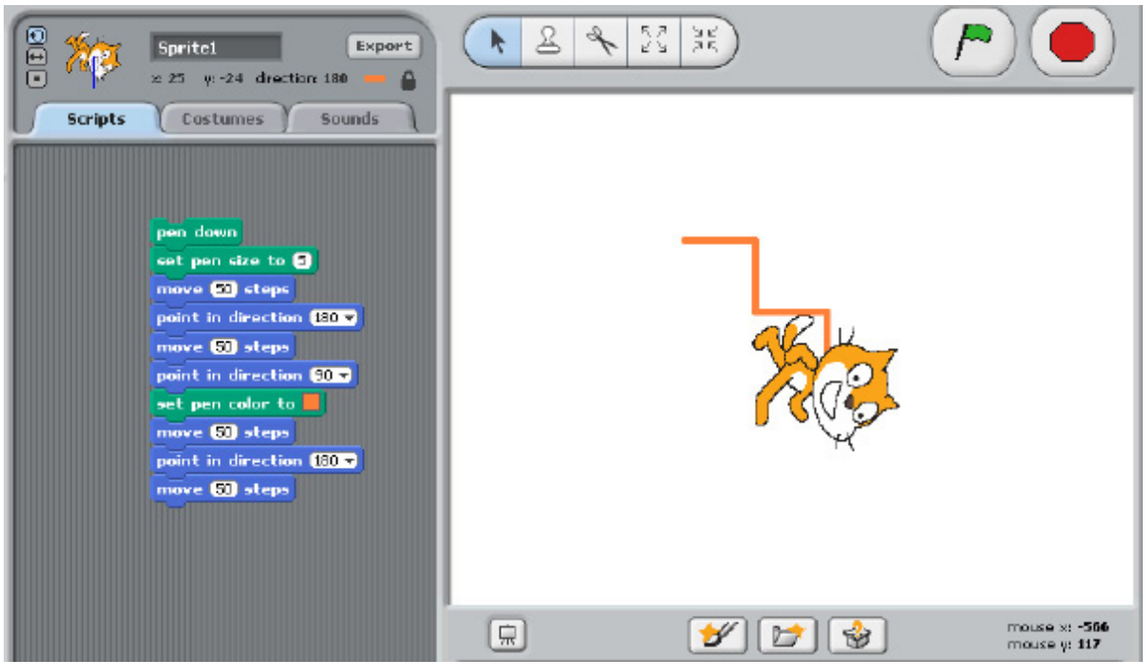
Moz: Correct. When you put all the instructions together it is called a block of the program. Explore the instructions in the options Motion, Pen, and others.

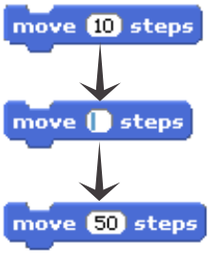
To write a Scratch program (the Script of detailed instructions for the Sprite)

1. We have to drag the instructions blocks such as Motion, Sound from the Blocks Palette area and drop them into the Scripts Area.
2. These blocks are pasted one after the other, to create the Script. (The blocks should fit into each other as jig-saw puzzle blocks.)
3. When you double-click on a Script, Scratch runs the program. It carries out the instructions in the blocks, one by one, from the top to the bottom of the Script.

SKILLS

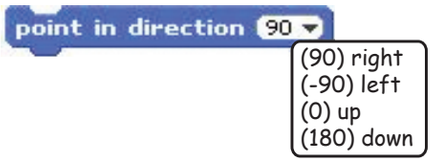
Tejas and Jyoti try out the following instructions using 'motion' and 'pen' Blocks and run the program.





Tejas: Jyoti, we can change the number of steps the Sprite moves, by clicking inside the number area and typing the new number.

Jyoti: Yes, and we can change the direction by clicking on the arrow and selecting the direction.



Tejas: Let us try the sound block instructions now.

Tejas and Jyoti write the following instructions using motion and sound blocks and run it.

Tejas: The cat makes the sound and then it moves.

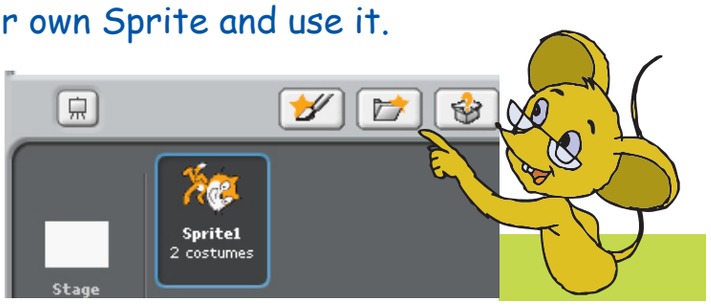


Sound block has instructions to make the Sprite speak, add musical notes, etc.

SKILLS

Tejas: Do we always have to use the cat as the Sprite?
Moz: No, there are several Sprites that are already available. You can use these or you can even draw your own Sprite and use it.

Moz: Click on this button to get a list of available Sprites, and we can select a new Sprite.



To add a new Sprite

Click on  to paint a new Sprite.

Click on  to select a Sprite from the existing list of Sprites and select one.

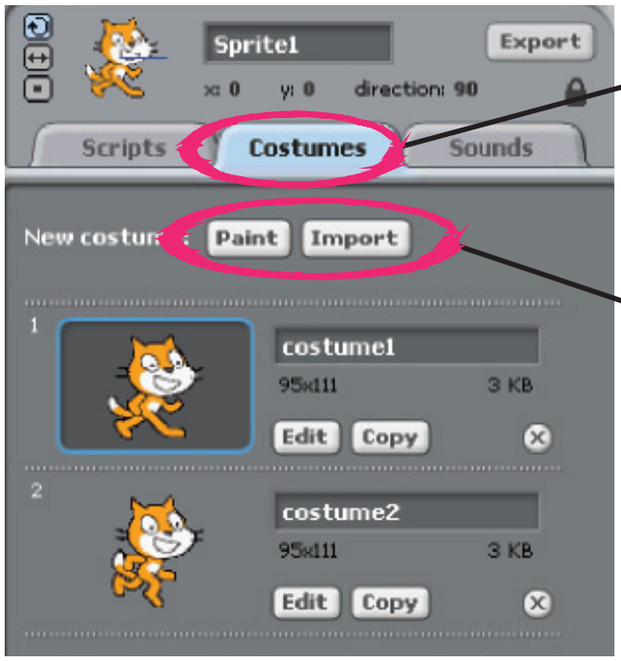
Click on  to get a surprise Sprite.

SKILLS

To delete a Sprite, select the 'scissors' button on the Tool bar and click on the Sprite. You can also change the size of the Sprite and the direction it faces.

Moz: To change the Sprite's looks, we can use Costumes.
Jyoti: Can we use more than one Costume for a Sprite?
Moz: Yes, You can.

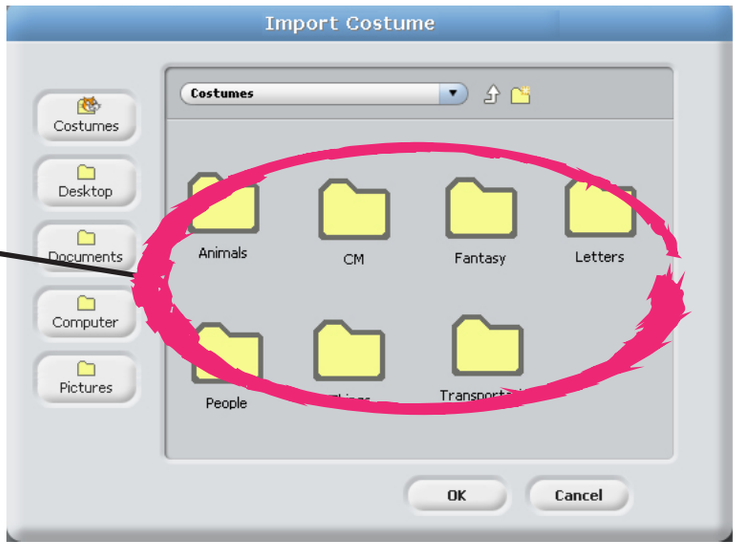
Steps to change the Costumes of the Sprite:



Step 1: Click on **Costumes**, to display the list of Costumes of the selected Sprite.

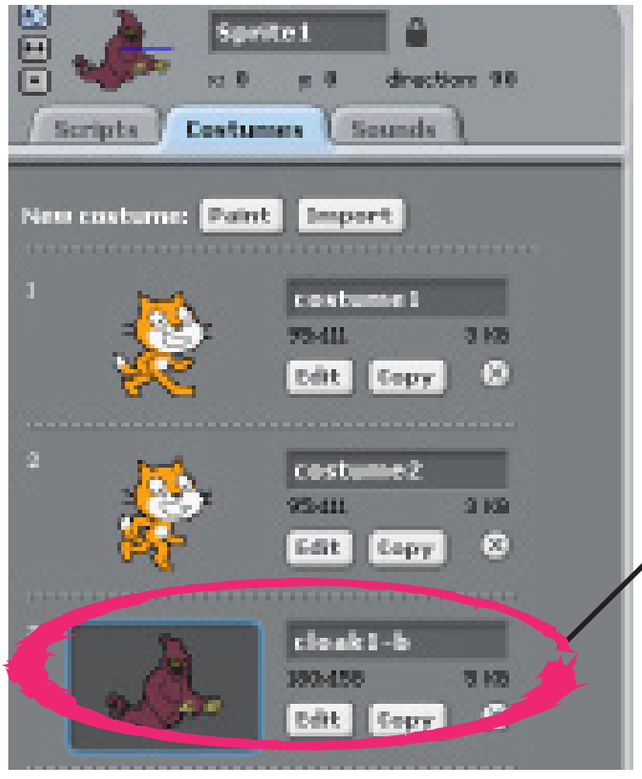
Step 2: Click on **Paint**, to paint a new Costume in Paint editor or click on **Import** to select a Costume from the available list.

Step 3: Open a folder to select a Costume of your choice.





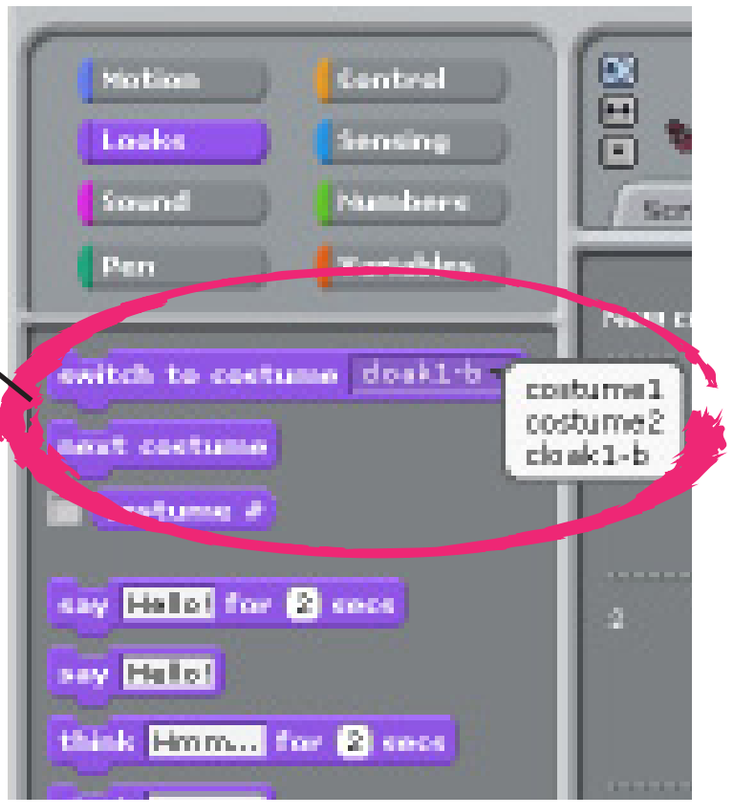
Step 4: Costumes inside the selected folder are displayed. Select the required Costume.



The selected Costume will be added to the existing Costume list.

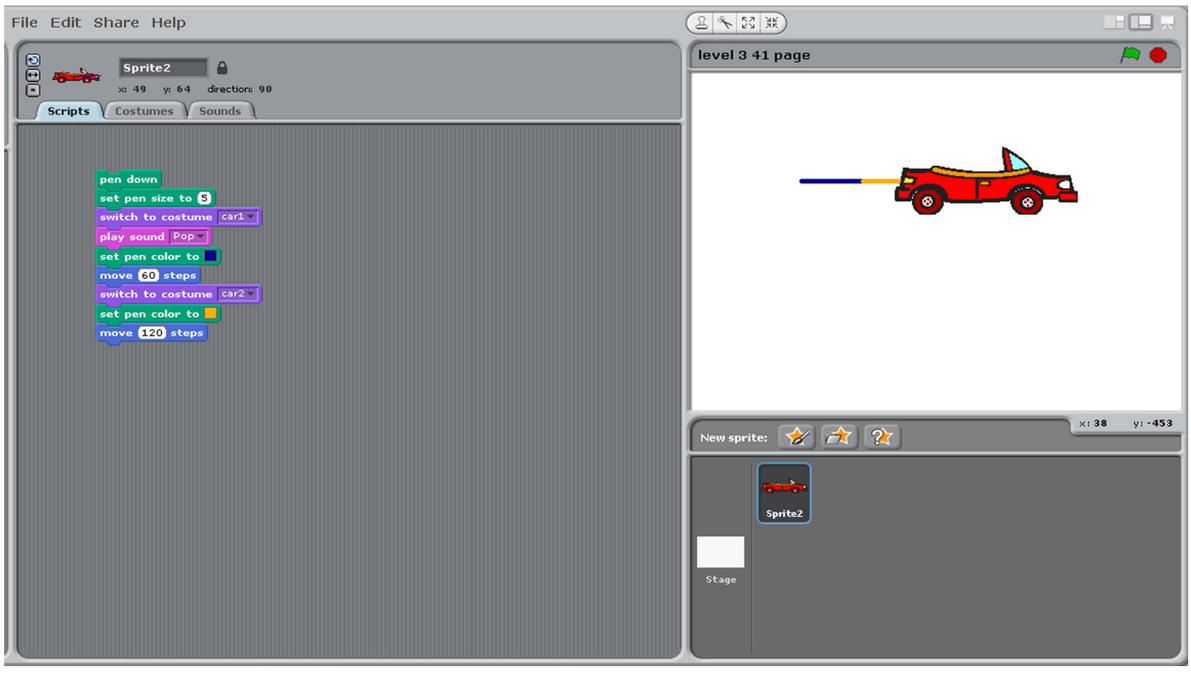
Tejas: How can we use these Costumes in our program?
Moz: Go to the 'looks' block. Here you can find the instructions to change the Costumes.

To change the Costume, you can use Switch to Costume (select the Costume from the drop down list) or the Next Costume commands.



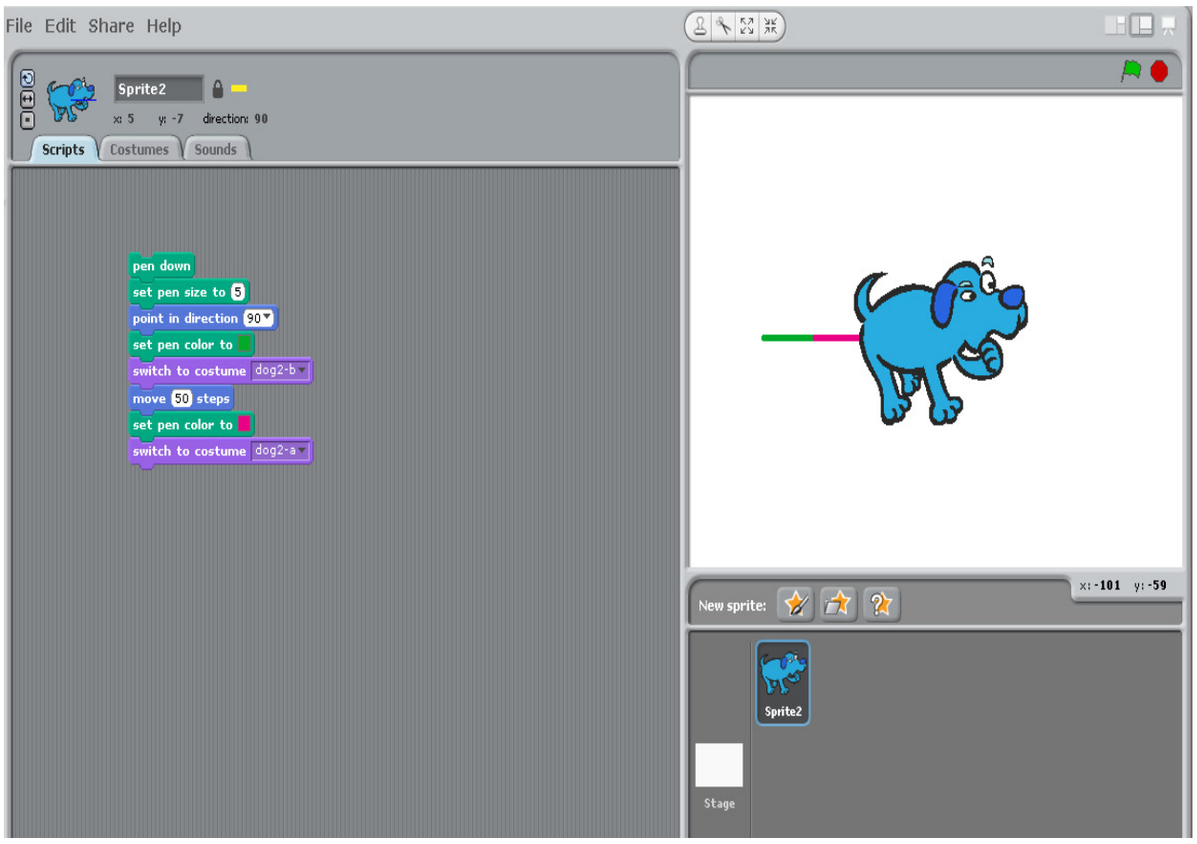
Jyoti: This is fun. Let us use the instructions in Motion, Pen, Costume and Sound and make some programs.

Tejas and Jyoti write the instructions and run the program.



Looks block has instructions to change the appearance of the Sprite.

Info



Jyoti: We can also make the Sprite speak. It appears as a call out across the Costume.

Tejas: That was fun.
Jyoti: Can we make the Sprite repeat the actions?
Moz: Yes, you can. You can also control the way the script is executed. Next time we will explore these features of Scratch.
Chin chinaki...



Learning Outcome

After you have studied this lesson, you will be able to:

- Describe the function of a programming language.
- Use Sprite and Stage to write basic Scratch programs (Projects).
- Write programs in Scratch using commands under Motion, Pen, Looks and Sound blocks.

WORKSHEETS



1. Circle the correct option.

a) In Scratch, the character which moves on the Stage is called a _____.

i. Sprite ii. Script iii. Command

b) Under what block do you find the instructions to change the Costume of a Sprite?

i. Motion ii. Looks iii. Sound

c) 

command can be found under the _____ block.

i. Looks ii. Sound iii. Motion

d) What will the Sprite do when you run the given below program?



i. Move 10 steps
ii. Say 'Hello'
iii. Move 10 steps and say 'Hello'

e) To see the trail of the Sprite when it moves, we use_____ command.

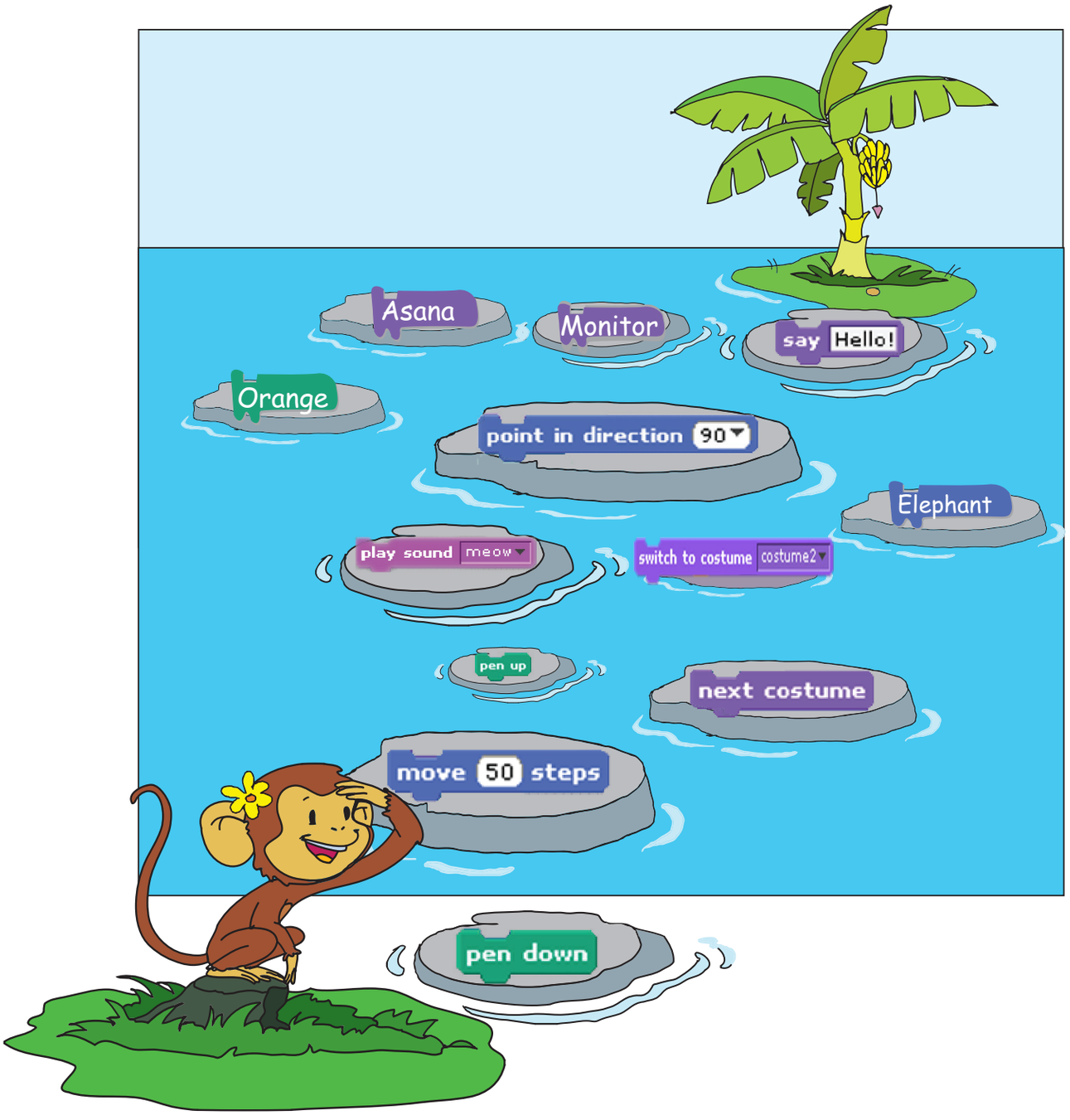
i. pen up ii. pen down iii. next costume

f) In Scratch, the Sprite moves on the _____ when you run a program.

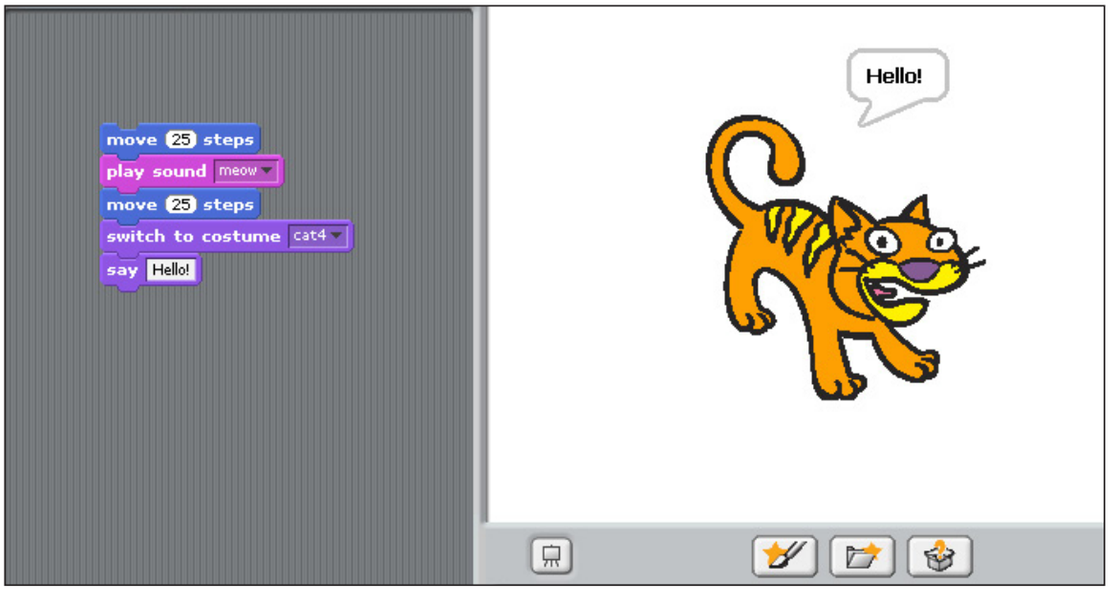
i. Stage ii. Canvas iii. Command



2. Martha monkey loves bananas. The banana tree is on the island across the river. To reach the tree she has to jump on each and every stone that has Scratch instructions. If she steps on the wrong stone she will sink. Help her reach the tree.

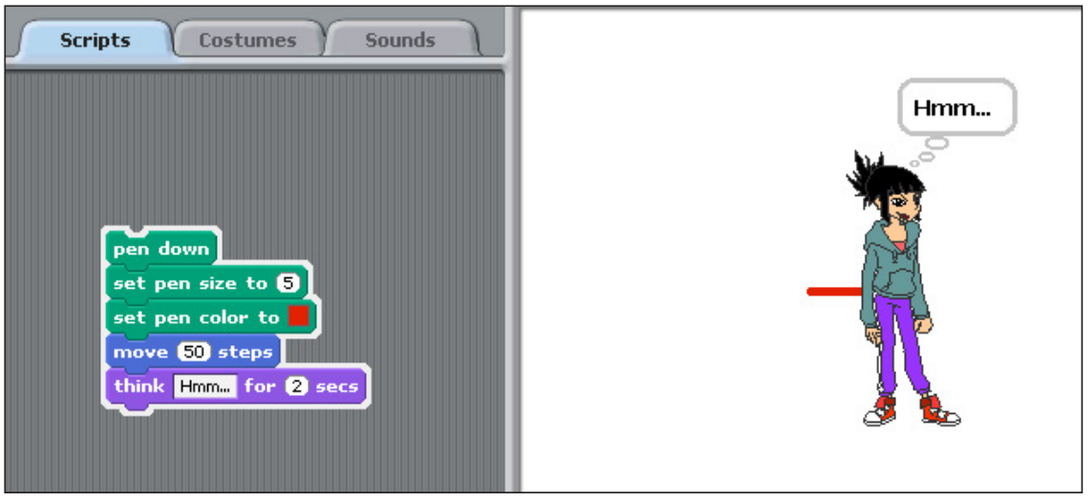


1. Write the following program in Scratch and save the project:



Change the Costume of the Sprite and again run the program.

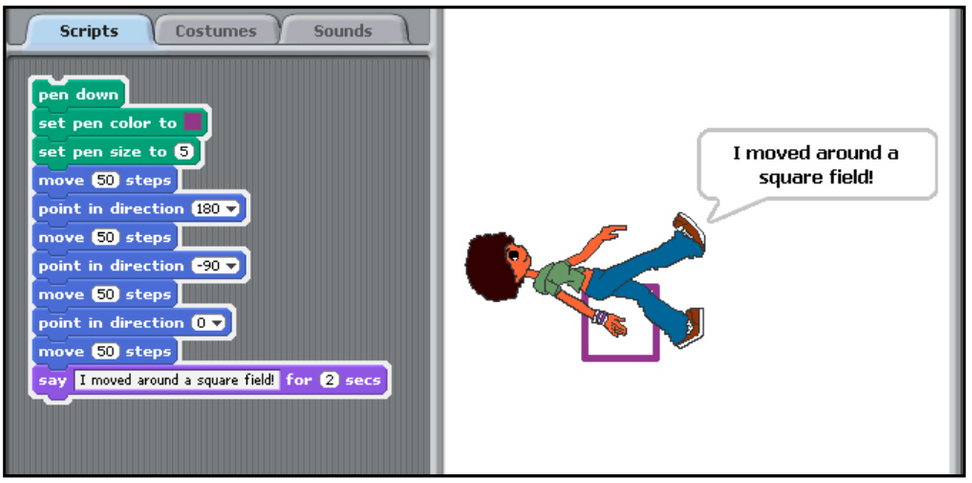
2. Write the following program in Scratch and save the project:



Add the following to your script:

a. Sound of an instrument.
b. Make the Sprite callout your name.

3. Write the following program in Scratch and save the project:



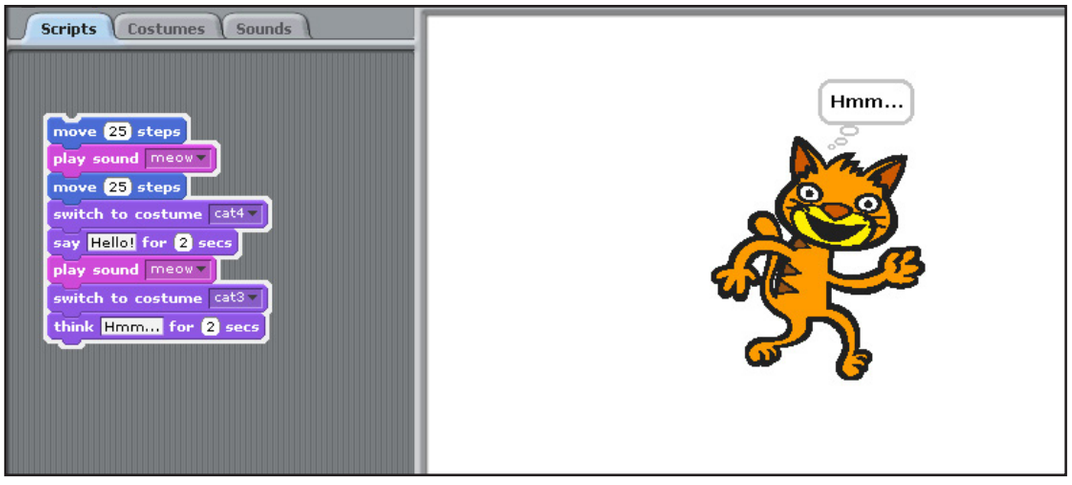
Modify the following in your script:

a. Change 'pen' colour to blue.

b. Change 'pen' size to 10.

c. Decrease the number of steps to change the size of the square.

4. Write the following program in Scratch and save the project:



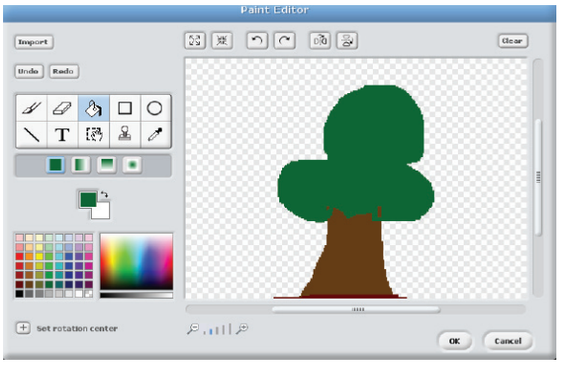
Modify the following to your script:

a. Track the Sprite's move using 'pen down'.

b. Change the dialogue inside the 'think' box.

c. Change the dialogue inside the 'say' box.

5. Draw a Sprite using Paint editor in Scratch. Select different colours, and 'brush' tool to draw the picture. Use the 'stamp' tool and the 'eyedropper' tool. Save the picture to use it as a Sprite or Costume in your programs.



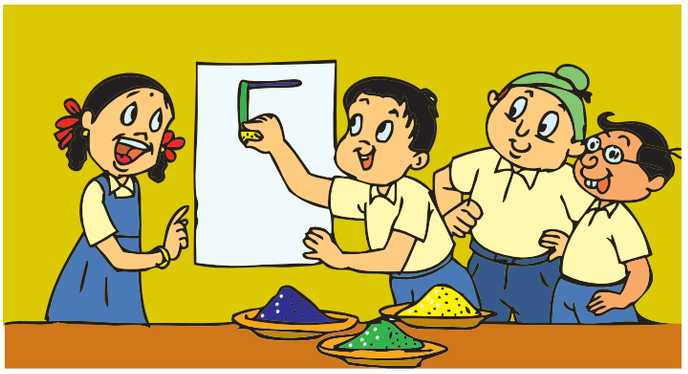
Group Activities

a) Rangoli powder drawing: The Class is divided into four groups. There are three steps to the activity.

Step 1: Preparation for the activity

- Get various colours of rangoli powder, 4 white chart papers and a few pieces of sponge.
- Spread out a few sheets and newspapers on the tables or on the ground. Spread the rangoli powder of each colour separately on the paper.
- A limited number of instructions are written on the board.

 For example:
 - Draw a circle.
 - Lift the hand, dip the sponge in Green rangoli powder.
 - Draw a square, draw a tree, etc.,
- Each group decides what they would like to draw and give it a title.



Step 2: Draw a picture on the chart paper.

- One student from the group starts by holding a wet sponge.
- The group members use the limited instructions on the board to make the student draw a picture on the chart.

Example:

- Dip the sponge in orange coloured rangoli powder.
- Move the hand to the top of the chart.
- Draw a square.

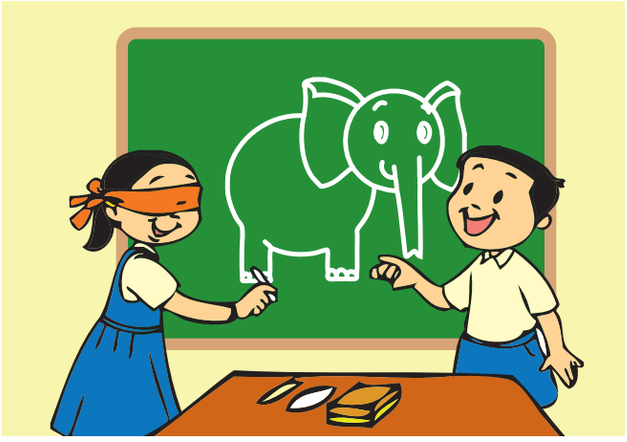
- Each student of the group gets a chance to draw, till the picture is completed on the chart paper.

Step 3: Display the chart

- Write the title of the drawing.
- Display the chart on the class display board.

Finally compare your instructions with the instructions available in Scratch.

b) Complete a drawing blindfolded: Blindfold a student. Ask other students to give the blindfolded student directions to do an activity. To make it fun while learning, draw an animal without a tail on the black board and ask the students to give instructions to the blindfolded classmate to draw the tail. These should be step by step instructions. The blind folded student only follows the instructions given. He or she does not do anything independently.



c) Robot fun:

All the students become robots. The teacher gives a sequence of instructions such as move hands and legs, forward, right, left, up, down, backward. These can be merged with sing a song, jump, laugh, dance etc.



Project

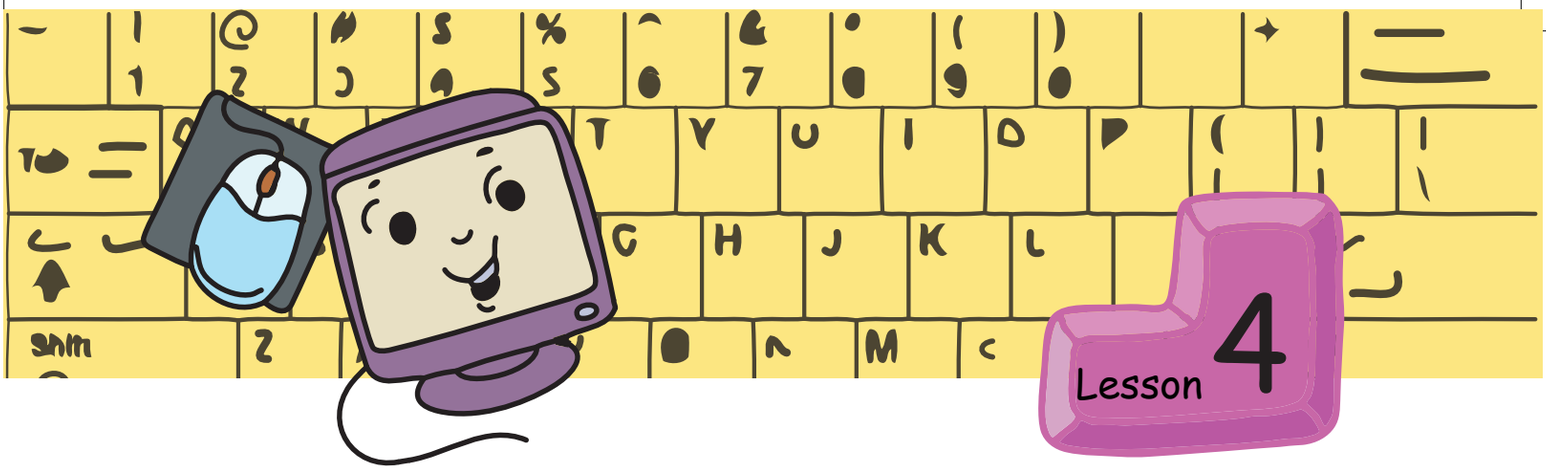
Do project 3 given in lesson 7.

Explore!

1. Find out how to make the Sprite move in a circle.
2. Find out how to make the Sprite jump.

- Begin the class by playing a game. Blindfold one student and ask the other students to give directions to do an activity. For example, pick up a piece of chalk from the table and write something on the blackboard. You can also draw a picture of an animal and ask a student to draw its tail. Note that the other students give directions for the activity. Explain that doing the activity requires giving step by step instructions. Just as we follow the instructions, the computer also needs instructions from us to do the activity. What we call step by step instructions, is called programming in computer language.
- Encourage the students to discuss what a particular object is called in their mother tongue. You will come across a variety of names for that object. Ask the students to imagine that they are visiting their friend's grandparents, who do not understand their language. How will they communicate with them? The students might say that they will use non-verbal signs to convey what they are saying or take help from their friend. Inform the students, that just as you need to learn a few words of the language to communicate in the new region, you need to learn the language of the computer.
- Mention that there are several programming languages. For now, they will learn one language of the computer, called Scratch. Explain that the Sprite is like your blind folded friend, who needs proper instructions from you to do the activity. Demonstrate how the Sprite can be instructed to move 20 steps and change directions.
- Ask the students if they want the Sprite to make a sound as it does the activity. Import the sounds and add it from the stack of blocks. [Ensure that the speakers are connected]. You may also show them how to introduce a callout to make the Sprite speak or think something. Let the students provide the dialogue for the Sprite.
- Ask the students if they want a different Sprite. Show them how to get the new Sprite or create a Sprite using the Paint editor. You can ask the students to explore the 'options' on their own and figure out how to change the background. Explain that the Sprite sounds and backgrounds are stored in sub-folders. The names of the sub-folders convey their contents.
- Revise the concept of folders and sub-folders. Ask questions such as "What would happen if the sub-folders were not used and all the contents were placed in a single folder?" Encourage students to think and reason out the necessity of organising files into folders.
- Explain that the instructions are placed in the appropriate blocks. For example, all the instructions about 'pen down' are in the block called 'pen'. Similarly, all the instructions for 'sound' are in the block called 'sound'. Demonstrate the use of pen down and write a script to draw a square. Explain that the instructions given to the Sprite is called a script. The output is saved as a project in the appropriate folder.
- Summarize the lesson and ask the students to write their projects. You can write some projects and ask students to make changes to it and observe what happens. You can ask them to write a story about it.
- You can end the class by asking students to do an exercise where students move their hands in the different directions --- forward, right, left, up, down, back. Change the sequence of directions and make the game enjoyable. [If there are space constraints, ask them to move their neck instead of hands.]

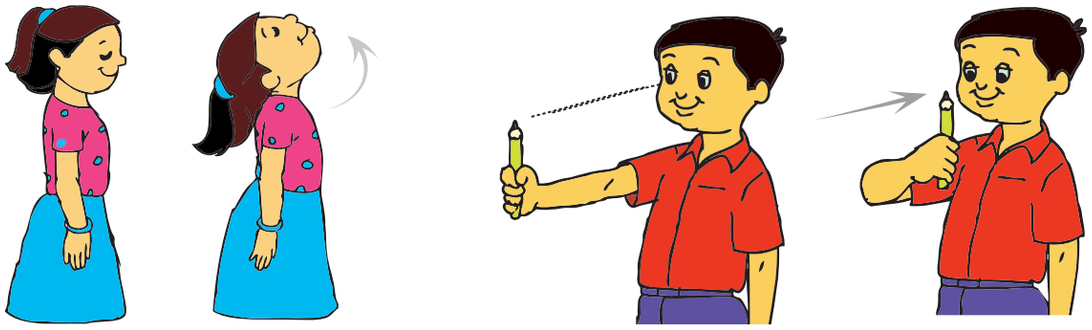
Further Reading :
http://scratch.mit.edu



Asanas while using Computers

Aim

In this lesson you will learn:
Exercises for strengthening wrists, neck and spine.
Eye exercises.



Moz: It is good to see that both of you maintain fitness by practising exercises that you learnt.

Moz: Is there anything else we should follow besides regular exercise?
Jyoti: Eat healthy food.
Tejas: Sleep early and wake up early.
Moz: Good. Eat a balanced diet and get adequate rest.

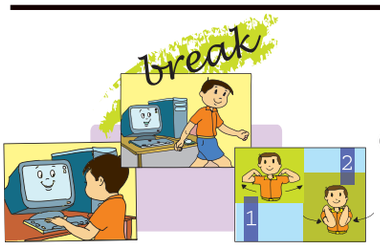
CONCEPTS

A healthy lifestyle can help you perform and enjoy your everyday activities, including the time spent at your computer.

Moz: While working with computers what can we do to keep fit and healthy?
Tejas: Do some stretching exercises. Do not work for more than half an hour at a time.
Jyoti: If we are not using the mouse or keyboard then keep the hands relaxed.
Moz: Correct.

- While working on the computer, relax your hands and shoulders.

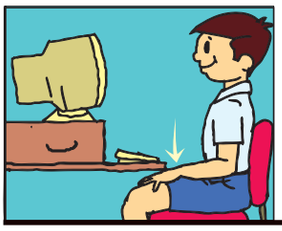




- Take regular breaks, every 5-10 minutes. Do some stretching exercises regularly.

- Put up a poster in the computer-area to remind everyone to do stretches.



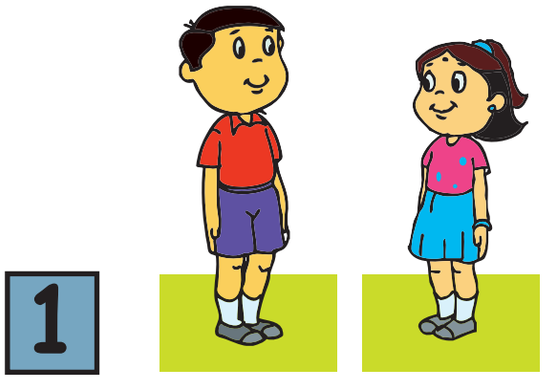


- If you are not typing or using the mouse, relax your hands in your lap.

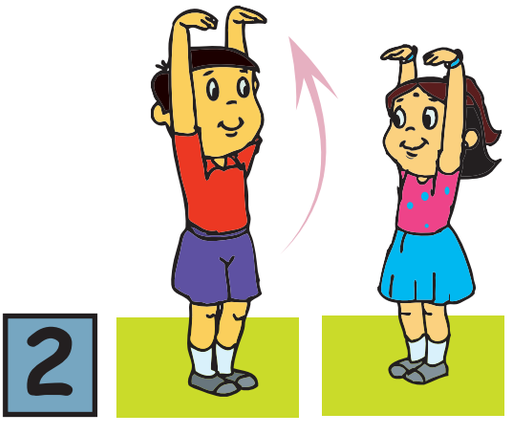
Tejas and Jyoti first do the yoga exercises-Kehuni Naman, Mushtika Bandhana and Greeva Sanchalana (Level II: See page no.: 27, 28) - before proceeding to show some asanas to Moz.

Moz: Can you make geometrical shapes while doing exercise?
Tejas: Yes. I know one.

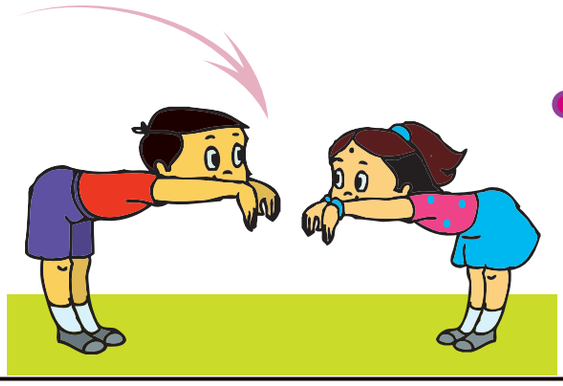
1. Samakonasana



- Stand with the feet together and the arms by the sides.



- Raise the arms straight up above the head. Bend the wrists so that the fingers are pointing forward. Allow the palms to hang limp.



3

- Arch the back slightly, and slowly bend forward at the hips, keeping the legs straight, until the back is horizontal and forms L-shape with the legs. Keep the head, neck and spine in a straight line. Look forward.
- Hold the final position for up to 5 seconds. Slowly return to the standing position, with the arms, head and back in a straight line. Lower the arms. Practise 3 to 5 times.

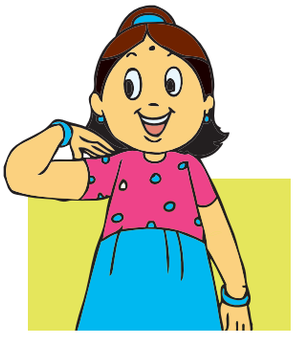
Moz: Do you know any exercises from the yoga class?

2. Skandha Chakra (Shoulder socket rotation):



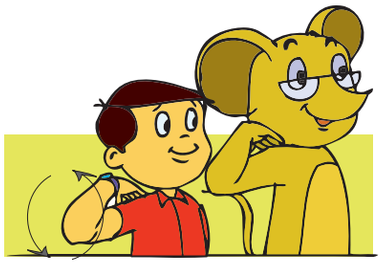
1

- Sit comfortably or you can even do this exercise standing. Keep the back straight.



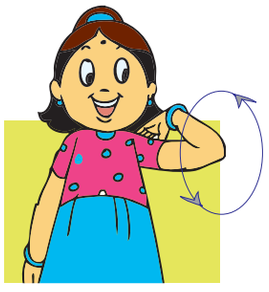
2

- Place the fingers of the right hand on the right shoulder.



3

- Rotate the right elbow in a large circle.
 Rotate 10 times in one direction and 10 times in the opposite direction.



4

- Repeat with the left hand. Make sure that the head, body and back are straight and still.

3. Manibandhana Chakra (wrist rotation):

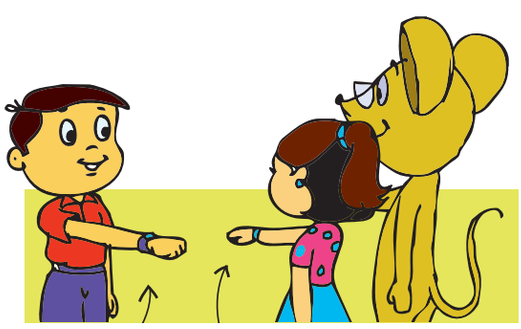


1

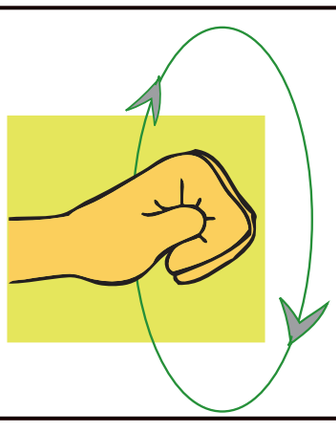
- Sit or stand comfortably. Keep your back straight.

2

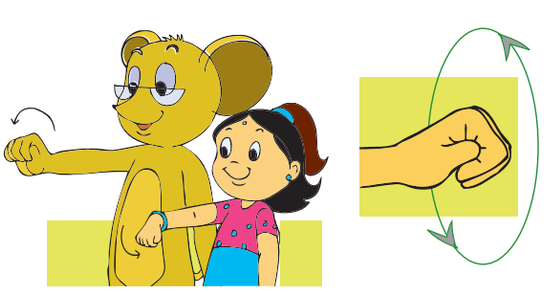
- Extend the right arm forward at shoulder level. Make a fist with the right hand, with the thumb folded inside. The left hand can be used to support the right hand if necessary. This is the starting position.



3

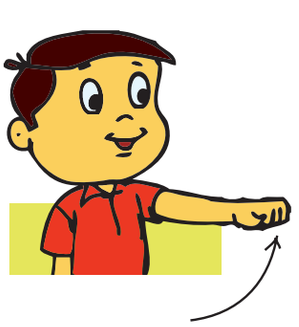


- Slowly rotate the fist around the wrist. Make sure that the palm faces down throughout the rotation. The arms and elbows should remain perfectly straight and still. Make as large a circle as possible.



4

- Practise 10 times in one direction and, 10 times in the opposite direction.

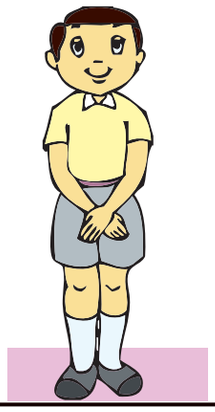


5

- Repeat steps 1-4 with the left fist.

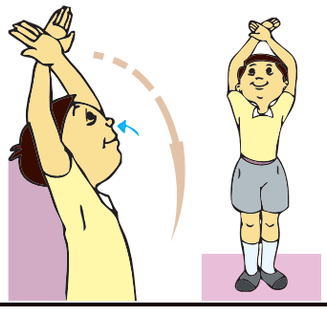
Moz: Strengthening your muscles is also important.
Hasta Utthanasana strengthens shoulder and back muscles.

4. Hasta Utthanasana (hand raising pose)



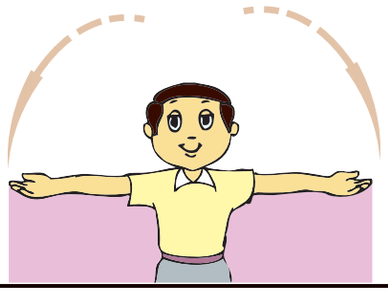
1

- Stand straight with the feet together and the arms by the sides. Relax your whole body and balance your body weight equally on both feet. To start the asana cross the hands in front of the body.



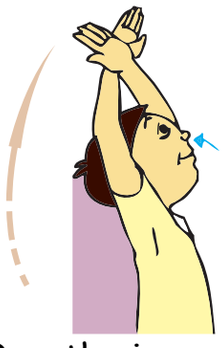
2

- Breathe in deeply and as you breathe in slowly raise the arms above the head keeping your hands crossed. At the same time bend the head slightly back and look up at your hands.



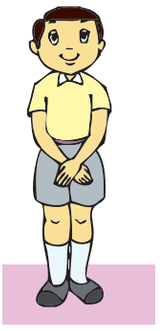
3

- Breathe out and spread the arms out to the sides so that they form a straight line at your shoulder level.



4

- Breathe in and raise your arms, re-crossing the arms above the head.



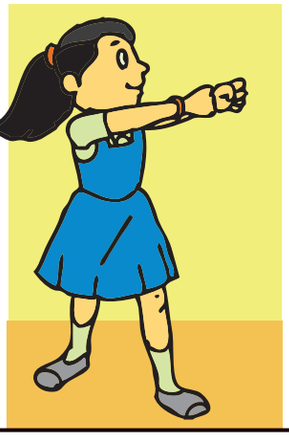
5

- Breathe out and lower the arms straight down the front of the body, so that they are once again in the starting position. Repeat 5 to 10 times.

Moz: Would you like to do a bow and arrow exercise?
Jyoti: Oh! That will be fun.

5. Akarna Dhanurasana

1



- Stand straight. Your feet should be shoulder width apart and your arms at your sides.
- Take a short step forward with your left leg.
- Make a fist with your left hand. Now lift the left arm and raise the arm in front of the body, so that it is over the left foot and slightly above eye level.
- Make a fist with your right hand and bring it slightly behind your left fist, palms facing each other.
- Gaze over the left fist as though holding a bow and arrow, and fix the eyes on an imaginary target.

2



- Breathe in and slowly pull the right fist back toward the right ear, tensing both arms as if drawing the bow.

3



- The head should move back slowly with this motion, so the neck muscles become stretched. Keep the right elbow up at shoulder level.

4



- Breathe out and release the imaginary arrow. Relax the neck and bring your right fist back to the left fist.

5



- Practise 5 times on each side.

Jyoti: I enjoy doing the exercises. I feel energetic after these exercises.
Tejas: Sometimes my eyes burn after using the computer. Why does it happen?

Moz: Your eyes get strained because you are looking at the monitor continuously.

Jyoti: Oh! We forget to blink once in a while.



Moz: Sometimes when we are too involved in something, we forget to blink and our eyes become dry. It is important to blink your eyes. Is there anything else that we can do to reduce the strain on the eyes.

Tejas: Look away from the monitor screen often.

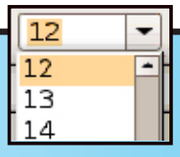
Jyoti: Clean the monitor so that everything is clear.

Tejas: Moz, do you clean your eye glasses regularly? The dust on your glasses can also increase strain as you cannot see clearly.

Moz: Yes, I do clean my glasses.

Jyoti: Sometimes the text size on the screen is very small. What should we do?

Moz: You can increase the size of the text as follows:



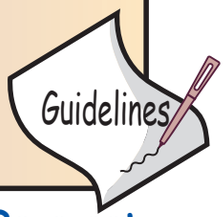
Example: To increase the font size

1. From the 'edit' menu, select "select all".
2. From the 'font size', select a number greater than the current size. For example if the current font size is 12, then increase it to 14 or more.

SKILLS

Minimize eye strain:

- Blinking and looking away from the monitor need to be done frequently.
- Take eye-breaks every 10 minutes, by looking away from the screen and into the distance.
- Remember to clean your screen. If you wear glasses, clean them also.
- If you cannot read the text easily, increase the font size of your text, instead of going closer to the monitor.
- Do the eye exercises regularly to avoid strain on the eyes and to have good eyesight.



Moz: Do the eye exercises that were learnt earlier - **Palming, Be a cat, Blinking, Pencil exercise**. The following exercise also help to avoid eye strain and to maintain good eyesight.

6. Rotational Viewing



1. Sit on the floor with your legs straight. You can even sit on a chair in a comfortable position, with your feet touching the floor. If the feet do not touch the floor, keep a support under you feet. Keep your back straight.
2. Place the left hand on the left knee.
3. Hold the right fist above the right leg with the right thumb pointing upwards and the elbow straight.
4. Make a large circular movement with the right arm to the right, then upward, curving to the left, and finally returning to the starting position. Keep the eyes focused on the thumb, without moving the head.
5. Perform five times clockwise and then five times anti-clockwise.
6. Repeat steps 3-5 with the left thumb.
7. Keep the head and spine straight throughout.
8. Finally, close and rest the eyes.

Moz: Remember that exercises and asanas done from a young age help in strengthening the muscles and keep you fit.
Jyoti: They improve your posture and also help you when you play games.
Tejas: Thanks for the asanas. Meet you tomorrow.
Moz: Chin Chinaki...

Learning Outcome

After you have studied this lesson, you will be able to:

- Describe aspects of a healthy life style.
- Do asanas for wrists, shoulders, waist and hands while working with computers.
- Follow guidelines to minimize eye strain.

WORKSHEETS



1. Bittu wants to do an exercise for the wrists. Which one should he do?

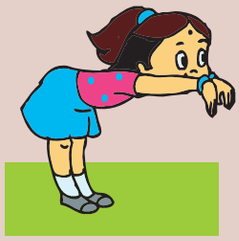


a) Hasta Utthanasana
b) Manibandha Chakra
c) Samakonasana

2. Help Tejas find the two exercises that are good for his shoulders.

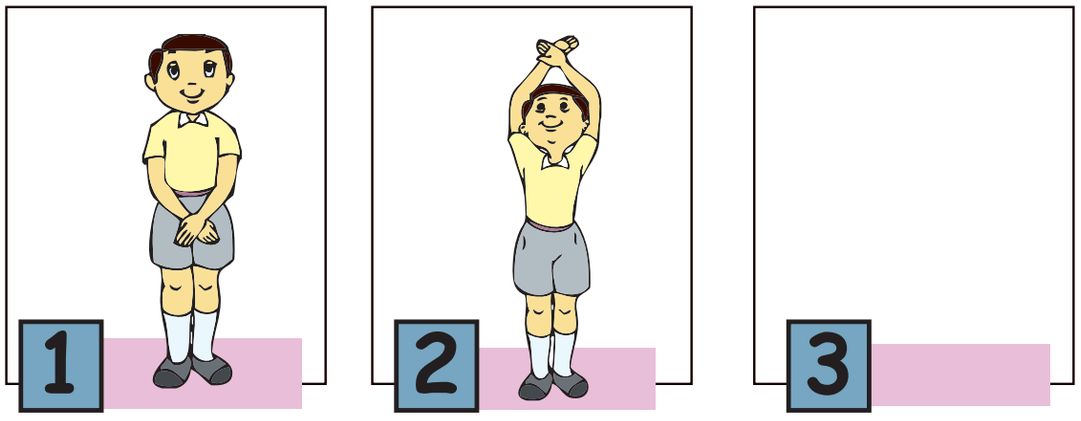
a) Hasta Utthanasana
b) Skandha Chakra
c) Manibandha Chakra

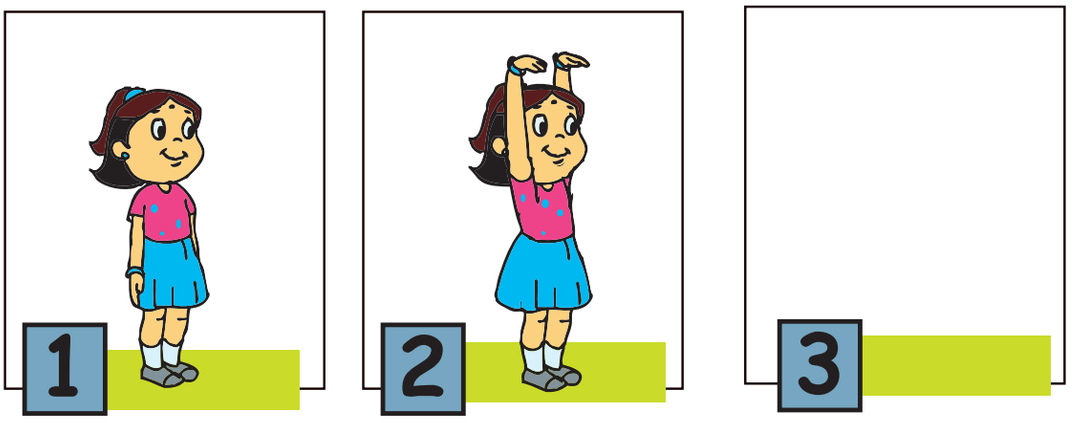
3. Match the following.

	Akarna Dhanurasana
	Skandha Chakra
	Samakonasana



4. Complete the sequence.





5. Tick all the correct statements:

a) While working with computers, relax your hands and shoulders.

b) Increasing the text size on the computer screen will strain your eyes.

c) Hang up a poster in the computer-area to remind everyone to do stretches.

d) You can work on a computer without breaks.

e) Do the eye exercises regularly to avoid strain on the eyes and to have good eyesight.

1. Observe the exercises that pop up on the computer, asking you to take a break. Follow these steps : Applications --->Other--->Workrave

a. Shoulder-arm stretch



b. Backward shoulder stretch



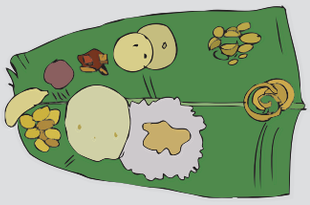
Group Activity

a. Use Paint application and make a poster of food items that make a balanced diet. Make sure you take breaks and change places with your friends. Each of you can draw a few items.

Milk



Meal



Vegetable Salad



Various types of Fruits

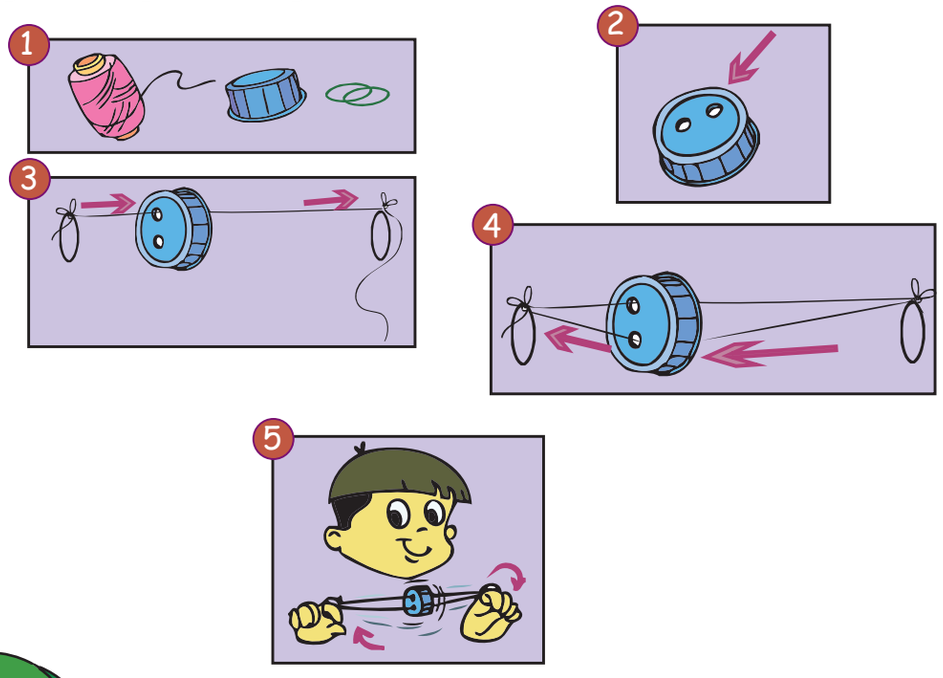


Bonus Points:- Can you also write a Scratch program to display your poster? Use the items drawn as Costumes!

b. Make a Pendulum or Yoyo:

3. You require - thread, a bottle cap and two small rings.
4. Make two holes on the bottle cap.
5. Tie one end of the thread to one ring and pass the thread through one hole on the cap. Take it to the other ring and tie a knot.
6. Now stretch the remaining thread and pass it through the second hole. Tie the end of the thread to the first ring.
7. You are ready to play the game! Wear the rings on the index finger of each hand. Hold the string loose and swing the bottle cap in one direction. Now pull the thread tight by increasing the distance between the two index fingers.

Hear the sound and observe the cap rolling with speed. Challenge your friends to play this game using other fingers!





Project

Do project 4 given in lesson 7.

Explore!

1. Find out different activities on the computer that tell you when to take a break.
2. Discover new asanas for eyes, and their names.
3. Write a Scratch program to show the above game.

Teacher's Corner

- Begin the class by asking students if they like to work with computers. (Most of them will say yes). Now ask, how long do they usually work on the computer. Ask them what would happen if they continue using computer for long hours. Summarize the discussion and explain the reasons for taking breaks while working with computers.

- It is important that students understand the reasons for having a balanced diet. Ask the students what food items do they like to eat. List these on the blackboard. Now ask the students what food items they think are healthy. List these on the blackboard. Ask the students to point out the similarities and differences in the two lists. Ask questions, such as --- "what will happen if you only have the food that you like? If you are fond of ice creams, can you keep eating ice creams every time you are hungry?" --- to encourage discussion in the class. Summarize the discussion and explain the importance of having a balanced diet.

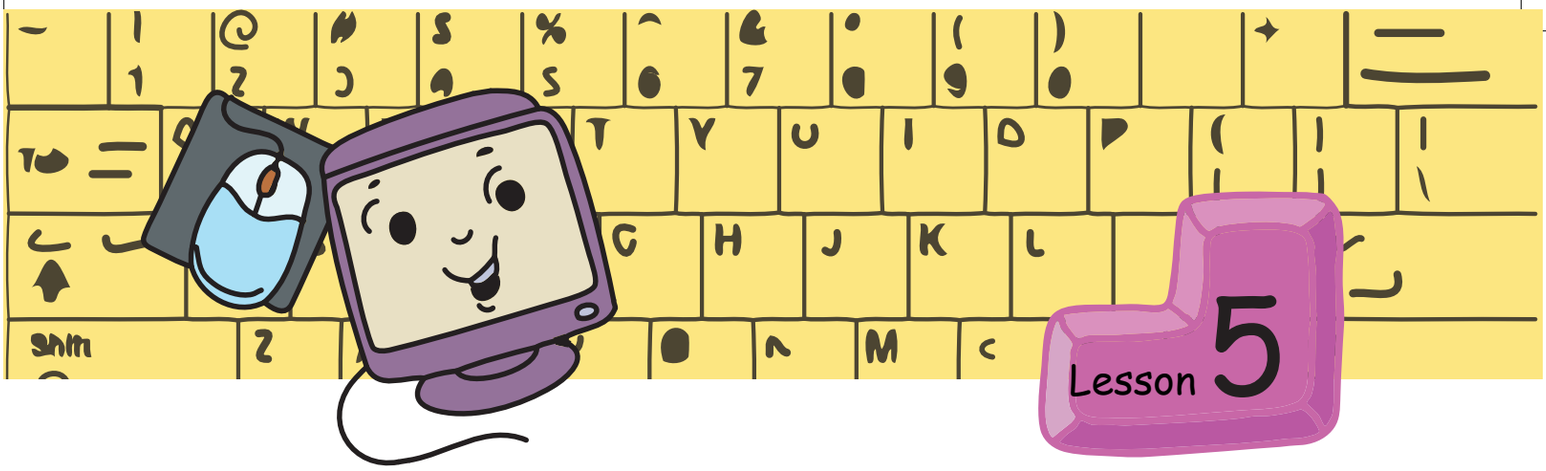
- Students have studied the dos and donts, as well as the exercises they should do to remain healthy. Ask four students to demonstrate these in the class. Revise these concepts and emphasize the importance of exercises. (Carry copies of Book II, lesson 3 to show the pictures of different asanas they learned in the computer class last year.)

- Tell the students what they should do to limit strain on their eyes. Demonstrate eye exercises in the class. Install applications such as RSI break or Workrave that remind the computer user to take a break.

- Teach the students the appropriate posture for using the keyboard. Emphasize the importance of sharing the computer with others in the class.

- Summarise the lesson. Emphasise the importance of taking breaks and doing exercises to remain healthy while using computers.

Further Reading :
http://tiki.oneworld.net/

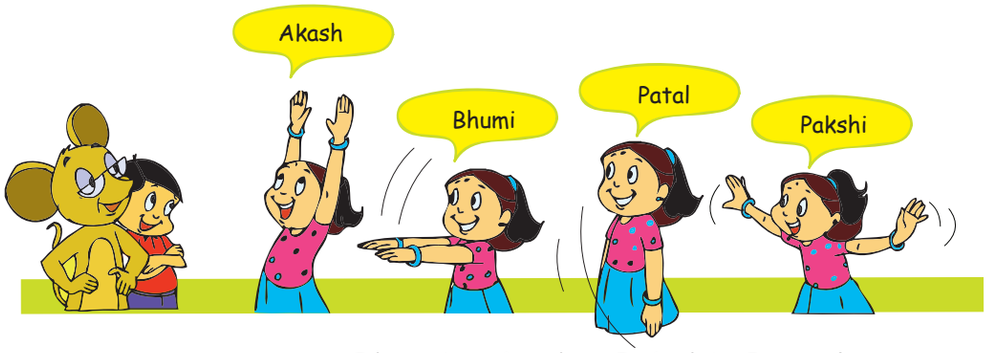


Simple Animation with Scratch

Aim

In this lesson you will learn:
To program in Scratch, using the instructions under control block.
To change the background of the stage.

Tejas and Jyoti are playing a game while Moz looks on.
The name of the game is 'Akash – Bhumi – Patal – Pakshi'.
The actions are: Akash – raise both hands up.
Bhumi – Both hands in front.
Patal – Both hands down.
Pakshi – Hands to the sides and flap.
Tejas gives a sequence: Akash – Bhumi – Pataal – Pakshi
Jyoti does the actions in the sequence.



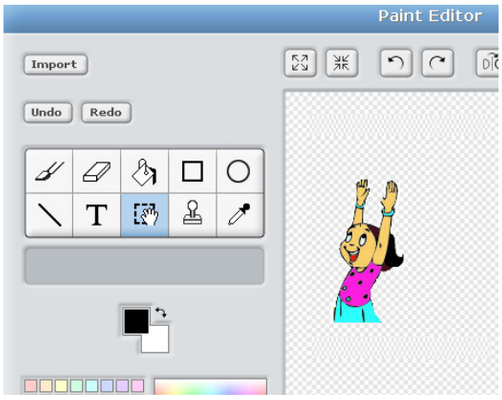
Tejas gives a sequence: Bhumi- Akash – Pakshi– Pataal
Jyoti does the actions in the sequence, but gets two of them wrong.

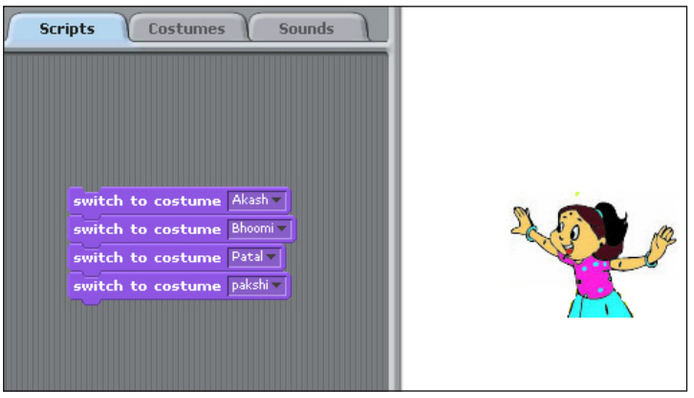




Tejas: Oh! you got the sequence wrong.





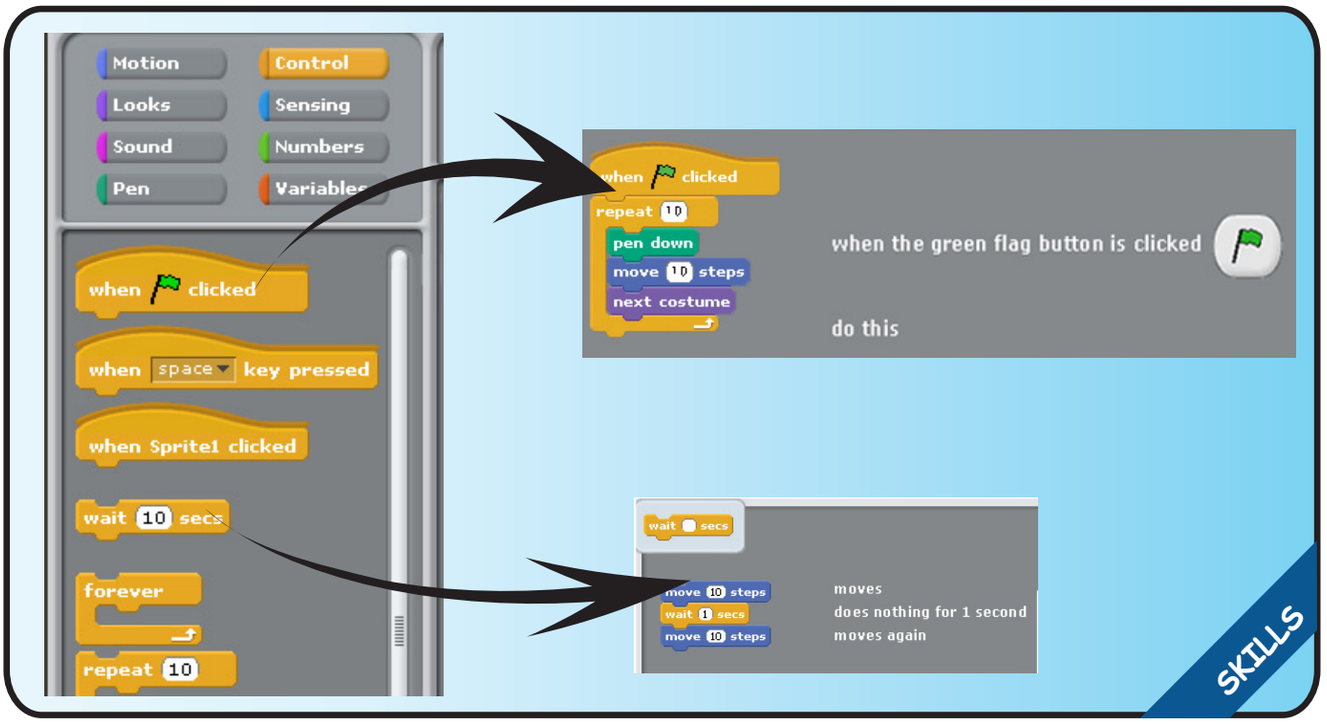


Moz: This is an interesting game. Now let us use the Paint Editor to draw the Sprite and Costumes for the game.

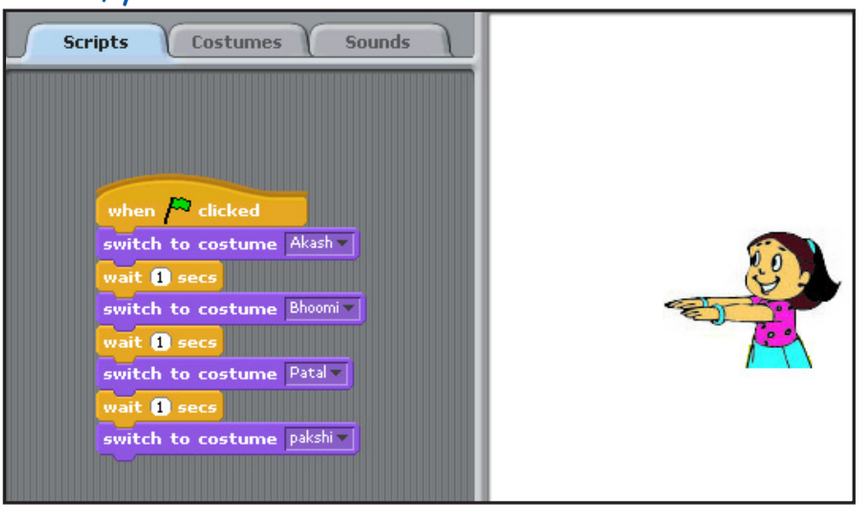
Tejas: Moz, we will write the instructions to make the Sprite do one sequence of the game.

Control block has the instructions to control the animation. Info

Jyoti: But it does the sequence so fast. What can we do?
Moz: What type of instruction do we need?
Jyoti: We need something to make the Sprite "wait".
Moz: Good. Explore the instructions in the control block. You can use the 'wait' instruction to make the Sprite do the sequence slowly.

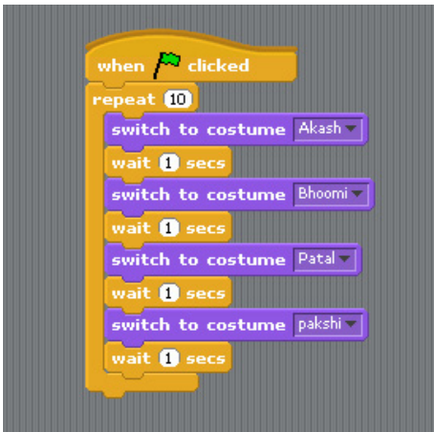


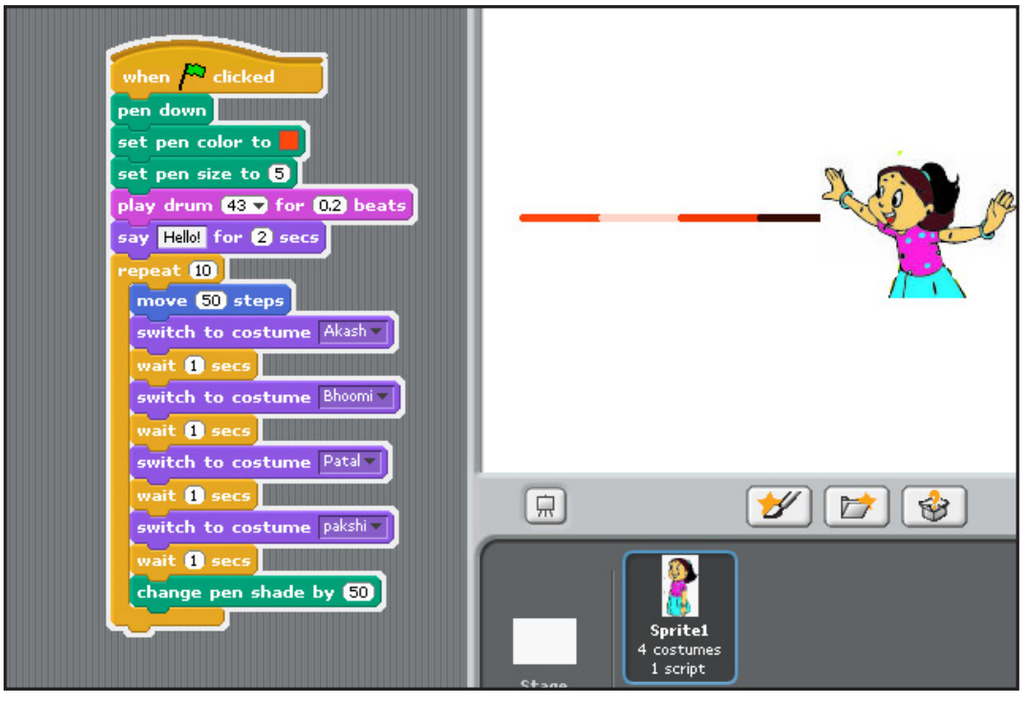
Tejas (pointing to "When green flag clicked"): Can we use this instruction to start the program?
Moz: Of course, you can.



Jyoti: Now we want the sprite to repeat the sequence 10 times.
Tejas (points to the Repeat instruction): Oh! Look at this instruction.

Tejas moves the control block **Repeat 10 times** to the script area and clicks on green flag to execute the instructions.
Tejas and Jyoti use instructions from 'motion', 'sound', 'pen', 'costume' and the 'repeat' instruction from the control block and write a program. Let us have a look at their program and its execution.

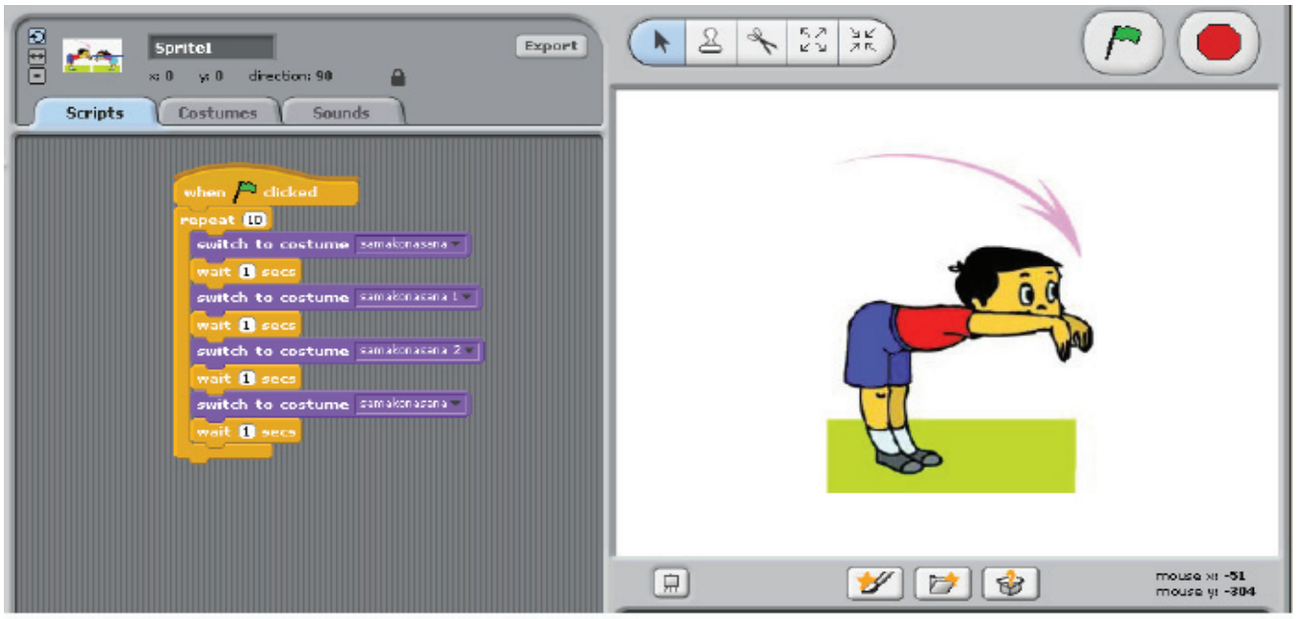




Tejas and Jyoti take a break and start exercising. Moz makes it fun by making a game out of it. When Moz says "start", they start exercising. When Moz rings a bell, they change the exercise.
When Moz says "stop", the children stop exercising.

Tejas: That was fun.
Jyoti: Let us write a program for this game.
Moz: I have created a Sprite for Samakonasana, you can use it.
Tejas: Let us try the block "When Flag clicked".
Tejas moves the block to the script area.

Moz: Ok. Now what do you want the sprite to do when the flag is clicked?
Jyoti: Start exercising.
Tejas: Let us write the instructions for the exercise.
Jyoti: We should also make the Sprite repeat the exercise.



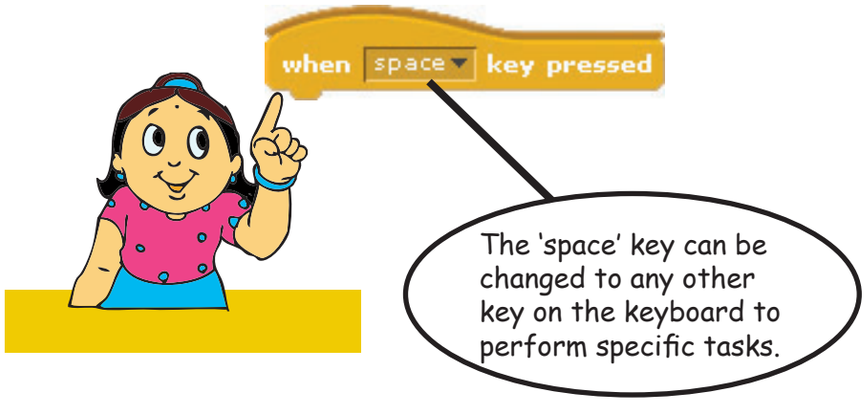
Moz: Good. Now click on the flag  and see what happens?

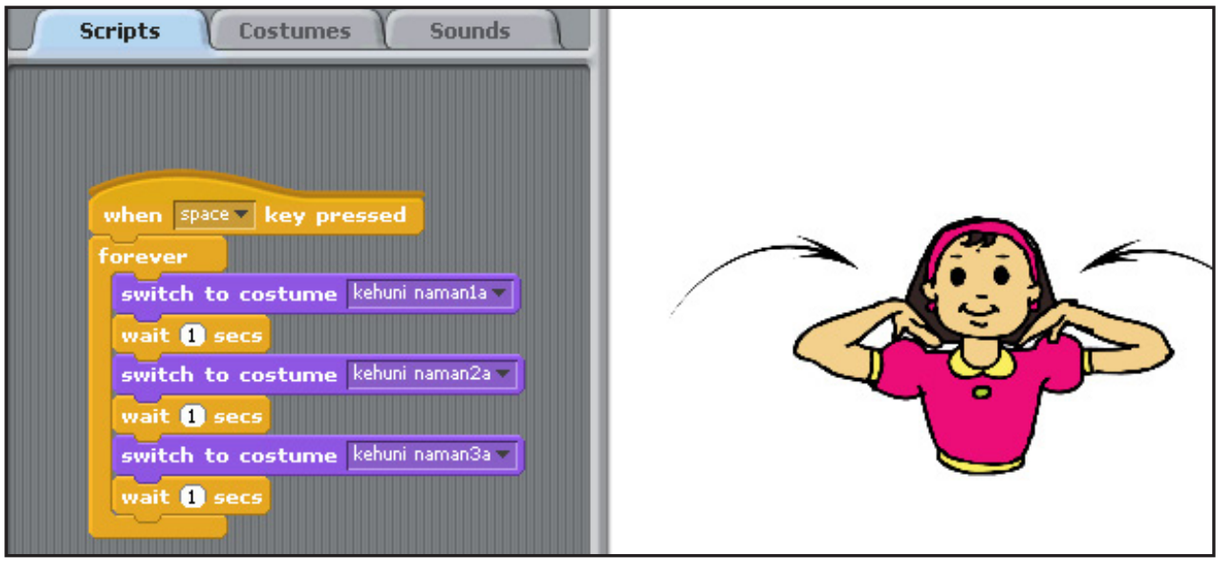
Tejas: Oh! The instructions are executed by the computer!
Moz: Yes.

Tejas: Do we always use the flag to start the program?
Moz: No. What does the instruction say?
Tejas: "When Flag clicked".
Moz (pointing to the block "when space key pressed"): You can replace the flag instruction with this instruction.

Jyoti: Can I write another block and use one of the control keys to start the execution of the block?
Moz: Yes. Go ahead and write instructions for Kehuni naman.

Jyoti changes the instruction and uses the space bar to start the program.

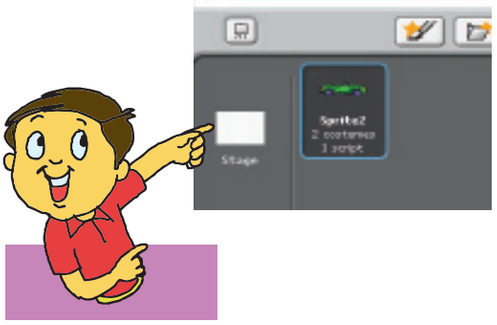




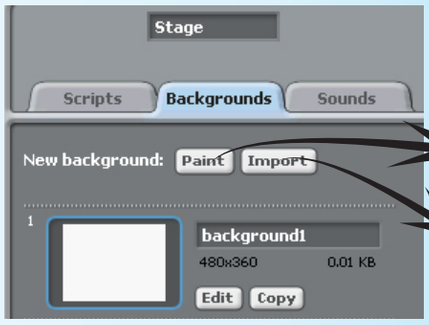
Moz: Good. Both of you have done well using the control block. When should one use the control block?
Jyoti: When we want to repeat a set of instructions.
Tejas: And when there are conditions like "wait for 10 seconds" or "When a key is pressed do something".
Moz: Correct.

CONCEPTS

Repeat and conditional instructions help in controlling the execution of the program.



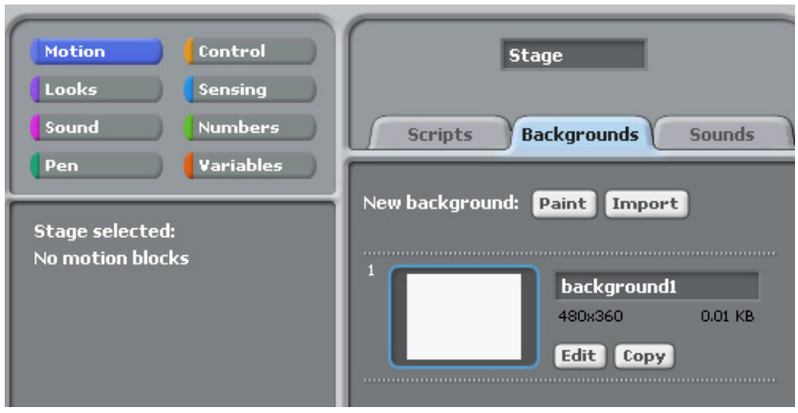
Tejas (pointing to the stage icon): What is this icon?
Moz: It is the stage icon. This icon is used to change the background of the stage. Click on the icon and see what happens?



Click to draw a new background.

Click to import a new background.

SKILLS



Jyoti: There are no motion blocks!

Moz: Background of the stage cannot move, so there are no commands in the motion block. The Stage changes the Background just as a Sprite changes Costumes. Explore other available instructions for the Background.

Tejas: See the Sprite has more commands under the 'looks' and 'pen' blocks than the Background.

The Background of the Stage can be changed. This is similar to changing the Costume of a Sprite.

Info

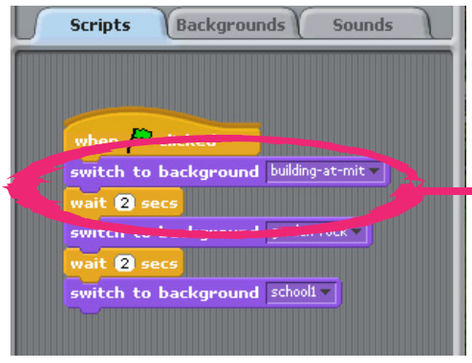
Moz: Now write a program to change the Background of the Stage.

Tejas: Let us make the Sprite go to school.
Moz: You have to write a separate Script for the Background and the Sprite.
Jyoti: Then how do we run them together?
Tejas: Suppose we use the same key to start both Scripts, will both the Scripts start running at the same time?
Moz: Yes. You are correct. Both Scripts will start running together at the same time.

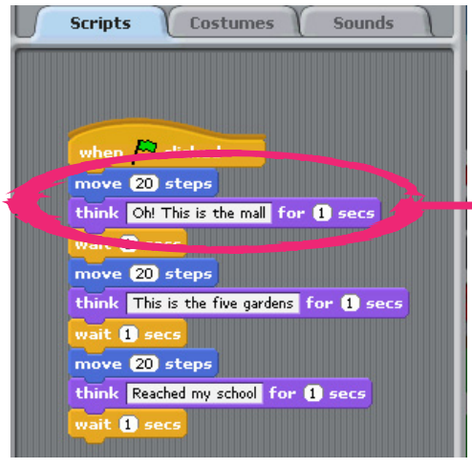
Jyoti and Tejas plan the sequence for the Sprite and Background as follows:

- Start with a background of a Mall.
- Let the Sprite move and say "Oh! This is the Mall".
- Change the Background to a garden.
- Let the Sprite move and say " This is the Five Gardens".
- Change the Background to school.
- Let the Sprite move and say "Finally, I have reached school".

Tejas: When the Sprite moves and says something, it will take about 2 secs (seconds).
Jyoti: So let us change the background after 2 secs.
Tejas: Let us start both the Sprite program and the Background program with "When flag clicked".



Script for the Background

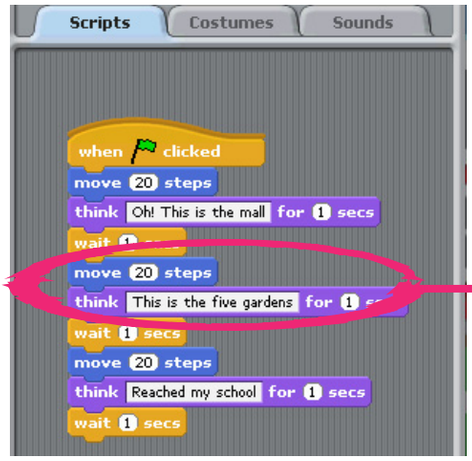


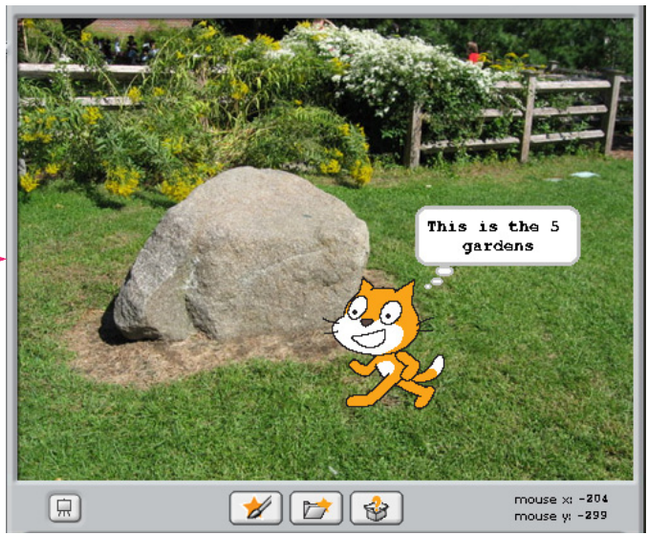


Script for the Sprite

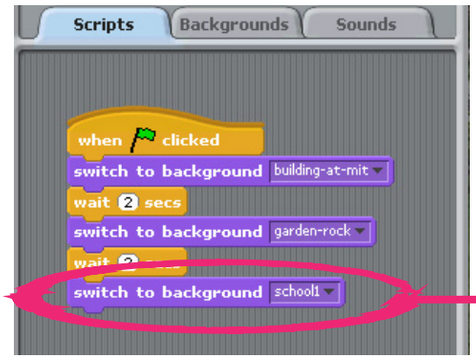


Script for the Background

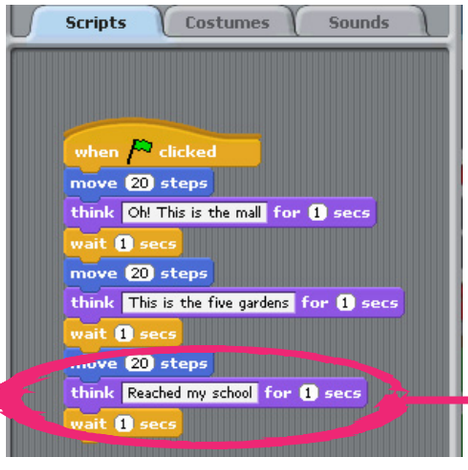




Script for the Sprite



Script for the Background





Script for the Sprite

Tejas: Oh! Looks like the Sprite is walking from home to school.
Jyoti: This is fun. Even with limited instructions we can make the Sprite do quite a few activities.
Tejas: And also make it look real by changing the backgrounds.
Moz: Yes. There are many more instructions in the five blocks of Scratch that you have learnt.

SKILLS

1. Plan the activity step by step.
2. Choose or paint the Sprite and costumes that are required for the activity.
3. To build the program, use the instructions available under motion, looks, sound, pen and control blocks of scratch.
4. Run the program.

Info

- Blocks of scratch and their usage
- Motion - Move the Sprite up, down, right, left, forward,or backward.
- Looks - Change the looks of a Sprite or the Background with Costumes.
- Animate the Sprite. Make the Sprite say something using Think or Say bubble.
- Sound - Play a sound or a musical note. Change the volume of the sound.
- Pen - Make the Sprite draw as it moves. Change colour, shade, thickness of the pen. Stamp Sprite's image on the stage.
- Control block - Repeat some actions. Use conditional instructions like "when key is pressed", do something. Include some time gap between actions.



Jyoti: Tejas, Let us plan a story and try it out tomorrow.
Moz: Good. Chin chinaki...

Learning Outcome

After you have studied this lesson, you will be able to:

- Plan and sequence the steps of a Scratch program.
- Use appropriate Control Blocks to write the program.
- Change Background of the Stage.

WORKSHEETS



1. Circle the correct option.

1. To make the Sprite wait for some seconds, you can use the 

. Where can you find this instruction?

 Control Block Looks Block Motion Block

2. The Background of the Stage can be changed using the instructions under the _____ block.

 Looks Motion Pen

2. Circle the instruction that starts the following program.









3. State whether the following statements are true or false.

1. There are no instructions under Motion Block when the Stage is selected. True/ False

2. To change the look of the Stage, we should change the Costumes. True/ False

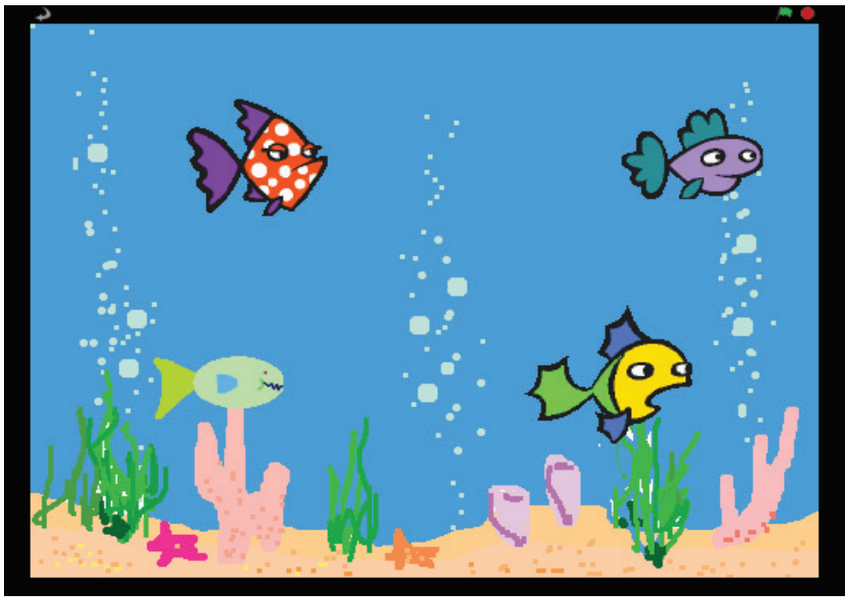
3. The 

instruction helps you to show the trail of the Sprite. True/ False

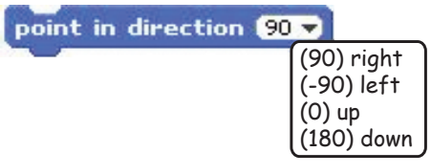
4. Match the instructions to the appropriate blocks.

Pen	
Control	
Looks	
Motion	

1. Make the following scene in Scratch.

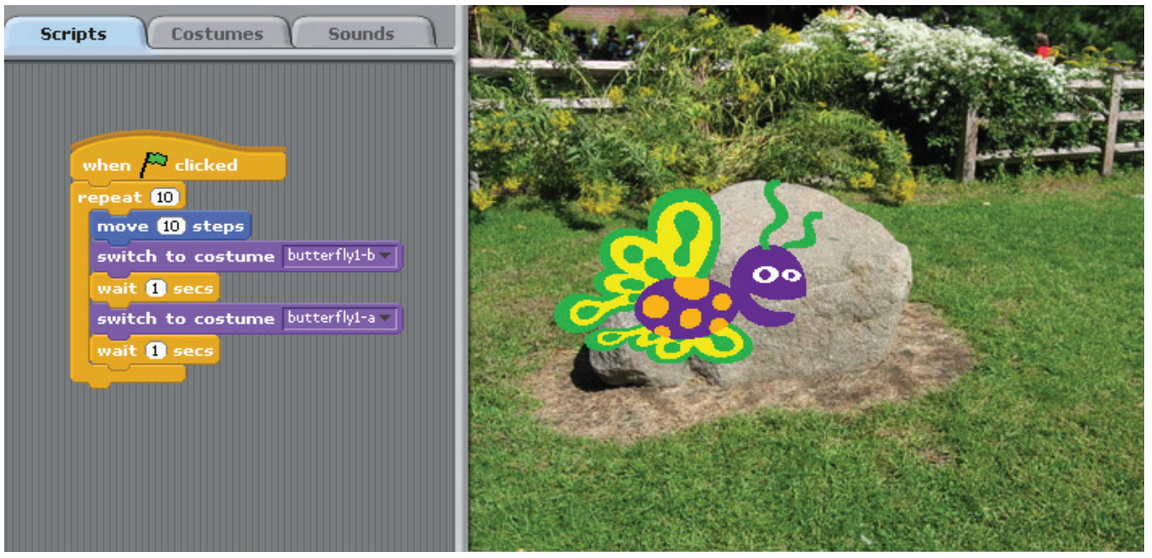


a. Write scripts to make each fish move in a different direction (up, down, left and right).

Hint: Use 

b. Write a script to make all the fish move in the same direction together?

2. Run the following program and see what happens?



3. Observe the following scene.



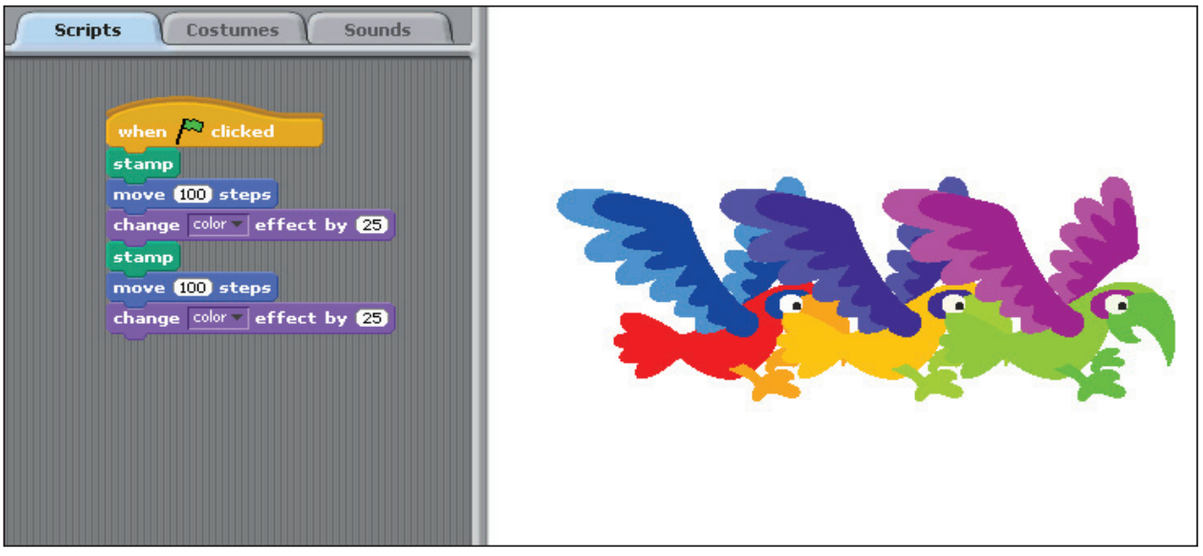
a. Write the Scripts for a dialogue between the two Sprites. You can use any Sprite of your choice.

Sprite 1: How are you?

Sprite 2: I am fine, thank you.

b. Write Script to make the Sprite dance to the beat.

4. Write the following program in Scratch and see the effects.



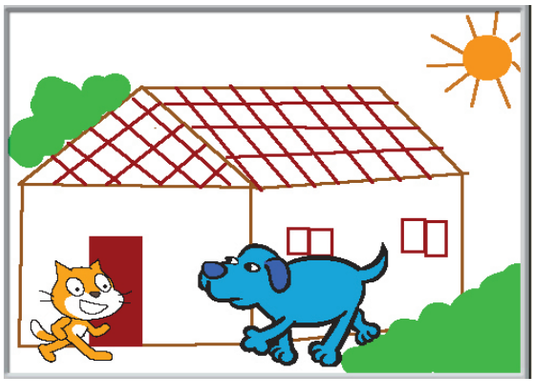
Now see if you can run the same program without repeating the commands.

Hint: Explore the instructions under control block.

Use the clear graphic effects instruction to clear all the changes you make.

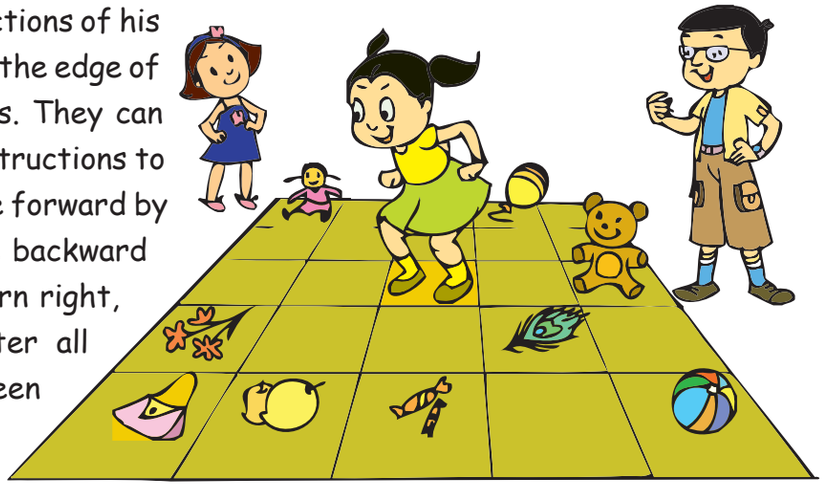
5. Using Paint editor draw two backgrounds of your choice. Now introduce Sprite(s) and create an animation. Explain the same to the class.

 Example:



Group Activity

Hopping game: To play this game the students are divided into groups of three. A grid (say 5x5) is drawn on the floor and the central square is marked. Two to three objects are taken and placed on some other squares of the grid. These could be balls or sweets or any small thing that the class finds attractive. Three students will play the game together. One student stands on the centre square, and will try to hop to the squares with the objects in them and pick them up. The student can only hop according to the instructions of his partners. The partners stand at the edge of the grid and give the directions. They can use one of the following four instructions to guide their hopping friend: Move forward by some number of squares, Move backward by some number of squares, Turn right, Turn left. The game ends after all the objects in the grid have been picked up.





Project

Do project 5 given in lesson 7.

Explore!

1. How will you make the Sprite draw concentric circles (circle within a circle with the same center)?
2. Explore where is the 'stamp' option in Scratch. Use it in a program and see what happens.

Teacher's Corner

- Start the class by revising the terms like Sprite, Looks, Costumes and Motion. Now ask the question "How do we start a Program/Script?" Double click is the option taught so far.

- Now write a Script to change the Costume of the Sprite. Run the program and see how fast the code is executed. The change in costume is so fast that it will be hardly noticeable. Ask the students what instructions are required to slow it down!

- Introduce the Control block and the commands available under it. "Wait, when green flag, space or any other key pressed", are some of the commands that can be introduced now.

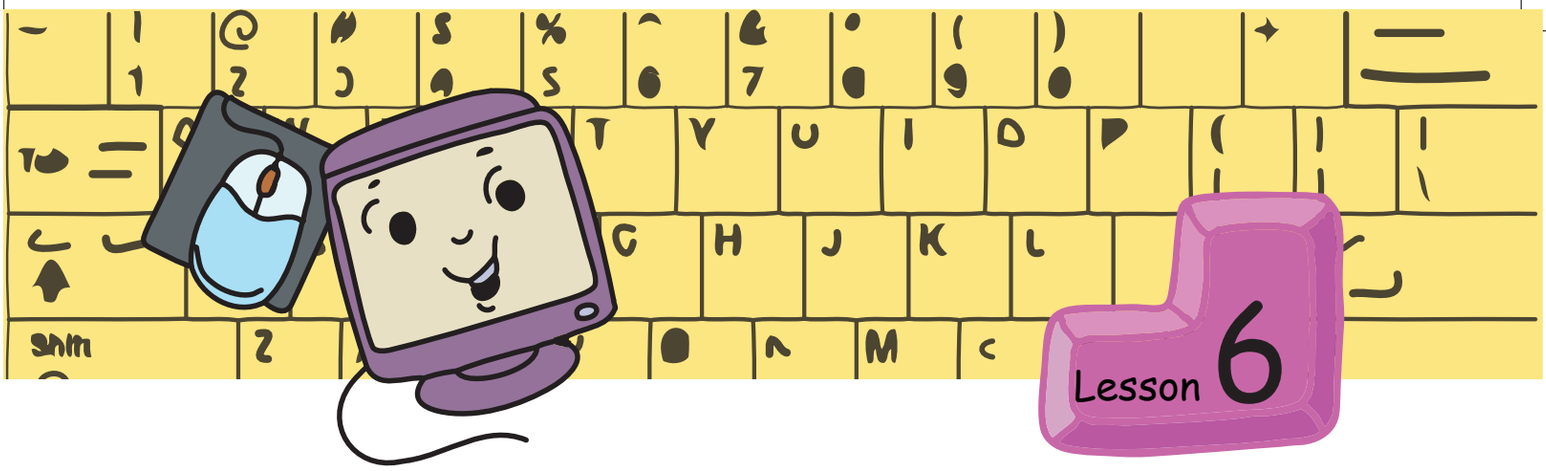
- Now show the Stage icon. Show how the set of commands under the different blocks like motion, control, etc. changes the output. Ask why there are no motion commands for the Stage.

- Explain what the Background is and show them how to change it. Tell them that we can draw Backgrounds using the Paint editor.

- Using all these commands and background, modify the Script which was written at the start of the class. If needed, introduce more commands under Looks, Motion and other instruction blocks to make a small skit. Let the students observe how the program runs when the 'green flag' is pressed.

- Ask the students to write projects and save it under a suitable name.

Further Reading :
http://info.scratch.mit.edu/Support/Scratch_Cards



Fun with Text Processing

Aim

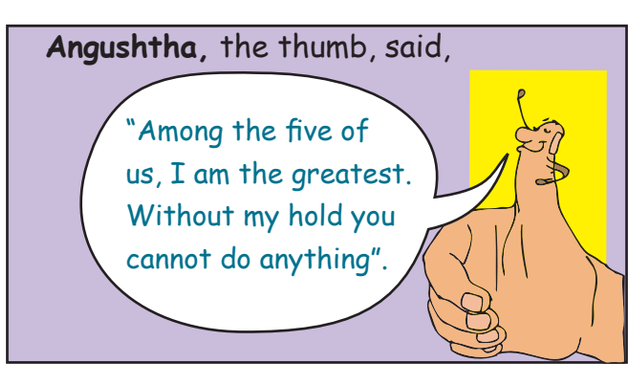
In this lesson you will learn:
What is a font and why it is important to choose fonts carefully.
How to use different font types, sizes, styles and colours.

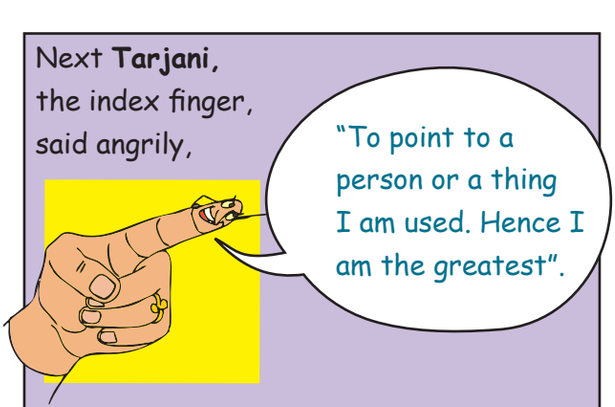
Moz brings a computer printout of a story.

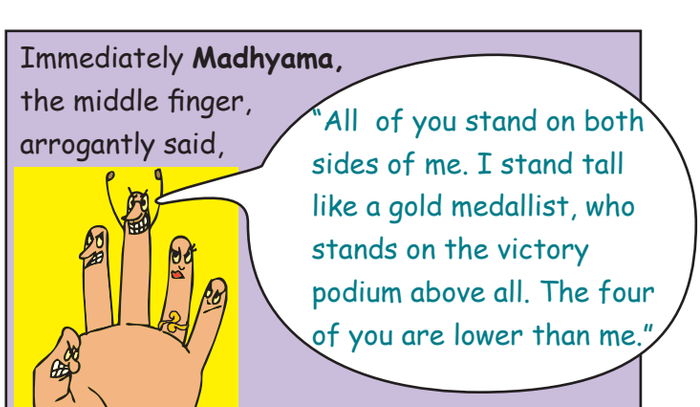


The story of the little finger

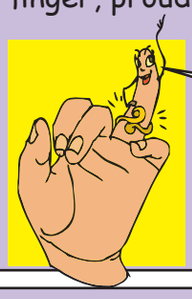






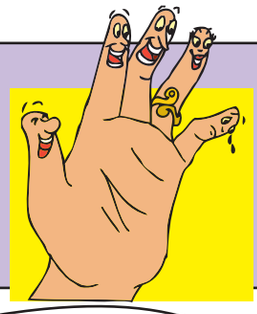


Next **Anamika,** the ring finger, proudly said,



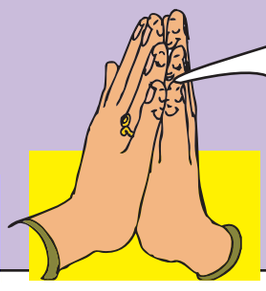
"I am decorated with golden rings, studded with diamonds. None of you are equal to me. I am the most respected".

It was now the turn of the little finger **Kanishthika**.
The other four fingers started laughing at **Kanishthika.** They thought that the little finger was good for nothing. It had no part to play in any activity.
Kanishtika was sad.



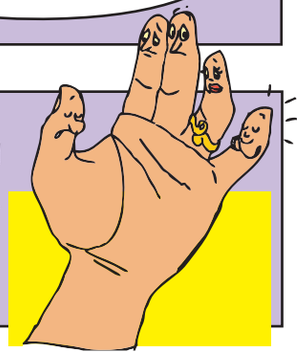
It thought and then with all humility it said,

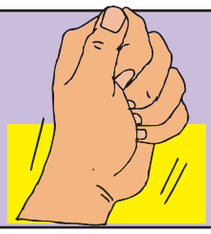




"When the two hands are joined in prayer I stand in the front or in the centre. and all of you stand behind me. But all of us are needed to pray. "

The other four fingers were ashamed of themselves. They realized that each finger was important and together they can do many tasks.





One finger cannot do much all by itself. When in a group they are used for work, play, expressing, learning, communicating, building, eating, painting and many other activities. The fingers together form a strong and powerful team. ***"Unity is strength"***.

Tejas: Moz, How did you make the text look different?
Jyoti: Some text is even coloured!
Moz [opens Open Office Writer]: The Word Processor activity has the options to colour and make the text look different.
Tejas and Jyoti: We will enter the text of the story again.
Tejas and Jyoti start entering the story.

The story of the little finger

Jyoti [to Moz]: The text looks different from yours.

Tejas: Mine also is different. This is something like our handwriting. My handwriting is different from Jyoti's.

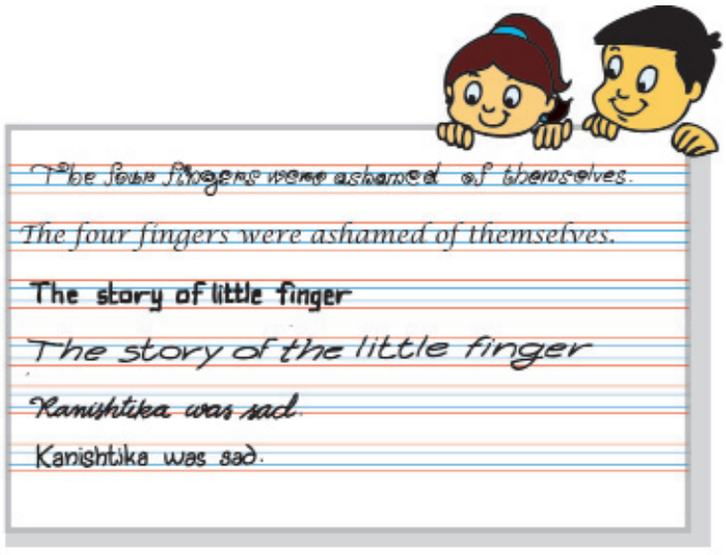
The story of the little finger

Moz: In the Word Processor, we have fonts. This is similar to handwriting. There are many types of fonts.

Jyoti: Looking at a handwriting we can recognize who has written it. So do fonts have different names?

Moz: Find this out on your own. Look at the toolbar to identify the name of the font.

Tejas and Jyoti: Oh! This is interesting. Let us try different fonts, and select the fonts that we like, to type the story.

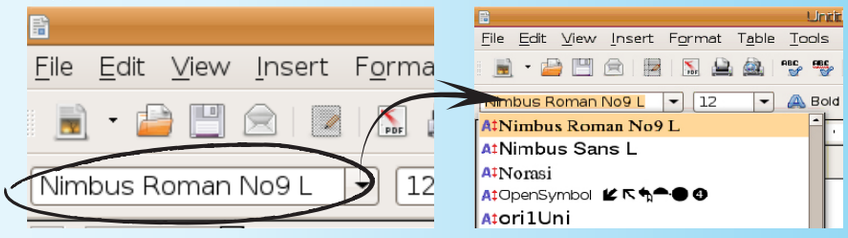


Moz: Remember that you are typing a story. This will be read by others. So choose a font which is clear and easy to read.

CONCEPTS

Choose a font which is clear and easy to read.

The following options on the tool bar can be used to change the font type.



SKILLS

- Selecting a different font is called changing the font type.
- Some of the commonly used fonts are:
 Dejavu sans, Times New Roman and Arial.

Info

Tejas: Moz, See how I have typed these two sentences. The first sentence has the same font throughout. The second sentence has different types of fonts.



1. Tejas, Jyoti and Moz are discussing fonts.
2. Tejas, JYOTI and Moz are discussing fonts.

Jyoti: It is not easy to read the second sentence.
Tejas: Yes. I think we should not use different fonts in a sentence.
Moz: Correct.

CONCEPTS

It is not easy to read, if you mix different types of fonts in the same sentence.

Tejas and Jyoti select the font, 'Comic Sans', and start entering the story.

Tejas: The title of the story should be in a bigger font size. There is a number next to the font type. Let us try increasing this number.



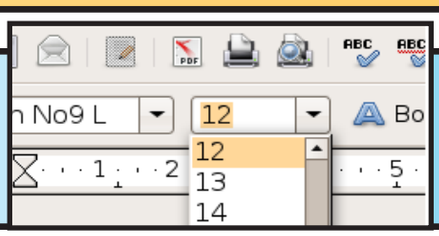
Jyoti: I remember we did this earlier to minimize eye strain.
Moz: Good. Now, give me a few examples of other places where you find big font sizes.
Jyoti: Our text book title and lesson headings are in big font sizes.
Moz: Why are the titles and headings in bigger font size?
Jyoti: It is easy to identify the book or a lesson when we use a big font size.
Tejas: It is easy to read. The title is important.
Moz: Why is the title important?
Jyoti: When we read the title we come to know what the lesson or a story is about.
Tejas: It also catches our attention.
Moz: Correct.

CONCEPTS

Larger fonts are used
- to catch the attention of the reader and
- for text which is important.

For example, titles are in larger fonts than the other text material.

Option to set size of the font is in the "Formatting toolbar".



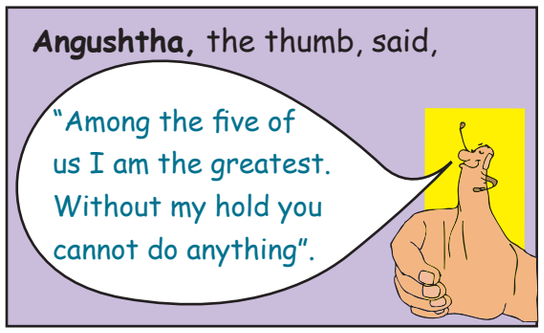
SKILLS



Jyoti: Some words like the names of the fingers are darker than the others. Is it because they are the main characters of the story?

Moz: Correct.

Tejas: The last sentence of the story, ***"Unity is strength"*** the text is slanting. Is it because the author wants to highlight this sentence?



Moz: Correct. This is called changing the style of the font. Darker text is called 'bold'. Slant text is called 'italics'. You can even underline the text.

CONCEPTS

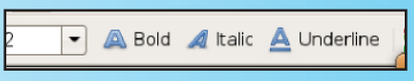
Whenever you want to highlight or emphasize a word or sentence

- Use either 'bold' or 'italics' or 'underline'.
- Remember not to use too much of either of them in your story, essay or any document that you are preparing.

The following options on the toolbar can be used to change the font style:

Option to set the text as 'bold'





Option to set text as 'italics'



Option to 'underline' the text

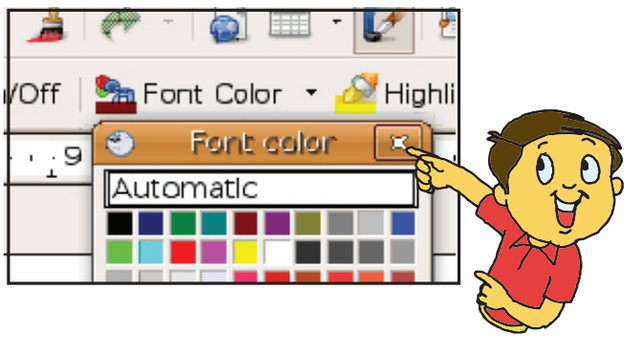


SKILLS

Tejas and Jyoti find the option to change the colour of the font. They enter the complete story.

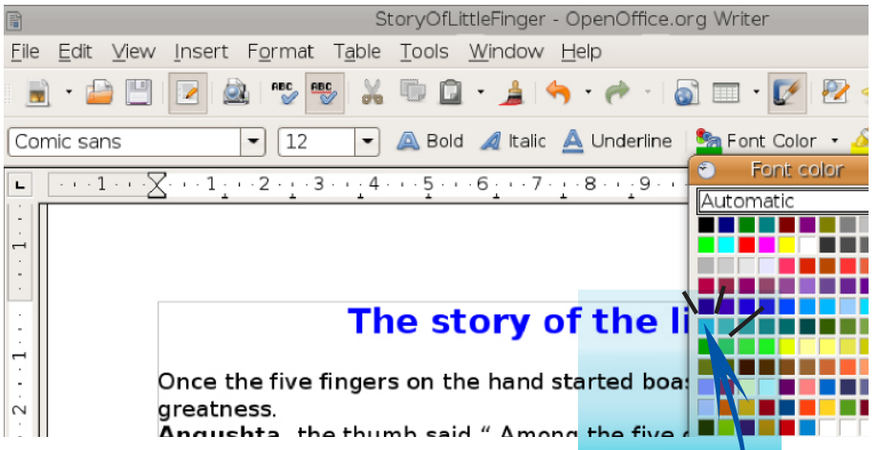
Tejas: Moz, We found the option to change the colour of the font.

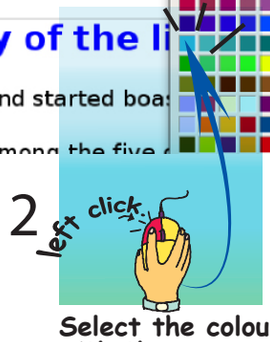
Jyoti: I used a different colour for the names of the fingers which are the main characters in the story.



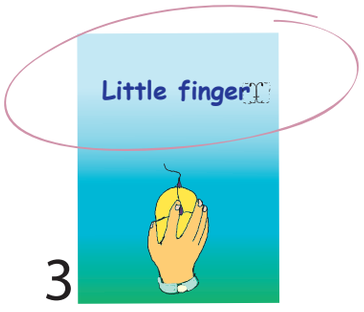


Select text with the mouse by dragging the mouse over the text.

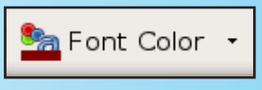




Select the colour option with the mouse from the tool bar.



Tejas: I used one colour for the title and the same colour for the last sentence. These are both important in the story.

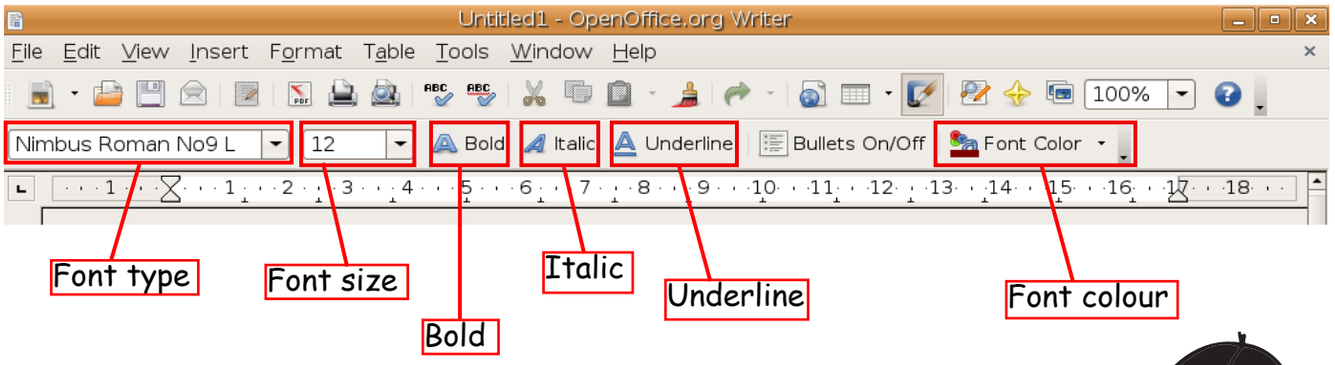
Option to set the colour of the font 

SKILLS

Moz: Good. Both of you have now understood the formatting concepts.
Tejas: Is changing font type, size, style and colour called formatting?
Moz: Yes. Formatting is one way of making the text easy to read and attractive.

Jyoti: Is it possible to 'format' after we enter the text? I want to make the title in bold style. Let me try selecting the text like we do for copy. Now click on bold. Yes, I got it!

Tejas and Jyoti play around with Word Processor for some time.





Tejas: Moz, I have been using the mouse for a long time. Should we take a break?
Moz: Yes. Do some of the exercises that you know for wrists and hands. I enjoyed teaching and learning from you this year. Meet you next year. Do all the projects that I have prepared for you in the next lesson. I would like to learn the game of chess from you next year. So be prepared!
Chin chinaki...

This text is in Comic Sans MS.

This text is Bold.

<u>This text is underlined.</u>

This text is in font size 18.

This text is Red in colour.



Learning Outcome

After you have studied this lesson, you will be able to:

- Decide which font type, size and style to use so that the text is easy to read.
- Use options like font type, bold, italics, colour from the toolbar to format the text.

WORKSHEETS



Use this Worksheet for Lab sessions

1. Use the words given in the box to fill in the blanks, using *italics* font.

fireman, postman, sailor, shoemaker

i. A person who goes to sea is a _____.
ii. A worker who works on heels but does not touch a foot is a _____.
iii. A worker who only works when he is alarmed is a _____ .
iv. A worker who gets many letters but never reads them is a _____ .

2. Given below is a Book-card made by Kadambari. Rewrite the text in the lines given below using the font specified in brackets.

Title of the book: Aditi, Meow, and moonshine (larger size font and **bold**)

Author: Shakuntala (*Italics*)

About the book: This is a story of a girl named Aditi and her cat, Meow. Aditi likes to say that things are real when they are not. One day that made a lot of trouble. (Regular in *cursive writing* with proper nouns in a different colour.)

Where: The book is in the public library. (Underline name of the place where the book can be found.)

Signature: Kadambari (*signature style*)



2. Circle the correct options.

a. Circle the words which are in 'bold'.

edit copy **paste** cut **save**

b. Circle the words which are in 'italics'.

print *open* click *file* folder

c. Identify and circle the words that are in the same 'font size'.

login shutdown logout username password

d. Circle the words that are in the same 'font type'.

happy joy **play** team *game* laugh

4. State whether the following statements are true or false.

e. To highlight a word, use regular font. True/ False

f. Larger fonts catch reader's attention. True/ False

g. Mixing different types of fonts in the same sentence makes it easy to read. True/ False

h. Do not use too much of bold, italics and underline at several places in your document. True/ False

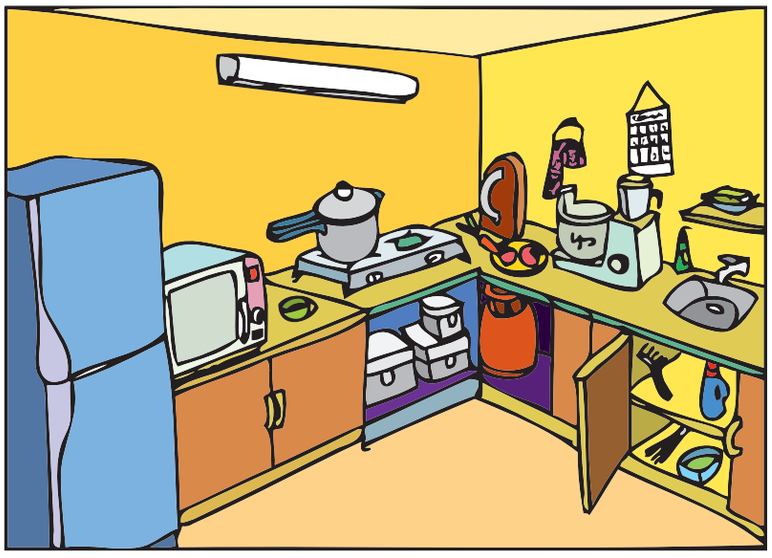
5. Match the column to show which words are in 'bold', 'italics' and 'underlined'.

1.	Bold	<u>instruction</u>
2.	Italics	**different**
3.	Underline	*story*



Use this Worksheet for Lab sessions

6. Observe the following picture and write the list of items, each using a different font style.







Use a word processor to do the following:

1. Write the names of different colours and show each word in its colour. For example, 'green' in green colour, 'blue' in blue colour etc.

2. Write the names of ten students in your class. Select the names and change the font style to 'bold'. Below each name write two qualities of your classmate in a different font.
 For example, **Manas:** honest, caring

3. Read the passage given on the left hand side. Now type the same in a computer and format it as shown on the right hand side.

Tummy upset?
No, tummy handset!

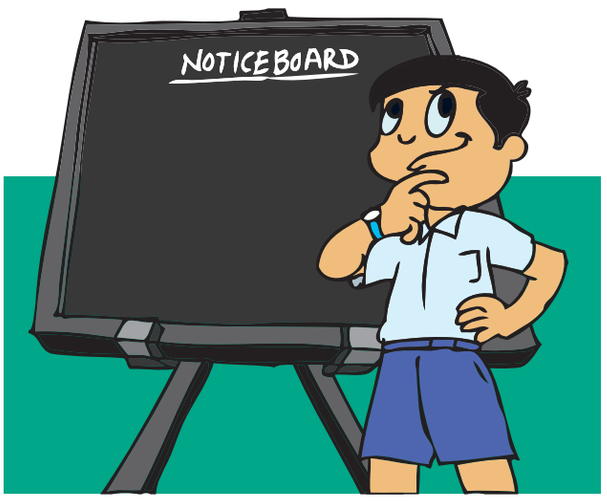
A farmer Vithoba lost his mobile phone while cleaning his cowshed and forgot all about it.
However, the next morning, he was surprised to find the plastic pouch with the mobile intact in the dung heap. What was surprising was that the cell had recorded ten missed calls. He realised that Meena, his buffalo must have swallowed the mobile.
No one knows what the callers heard. But the buffalo must have heard a ring tone every time the cell rang and must have wondered from where the 'moo-sic' was coming.

Tummy upset?
No, tummy handset!

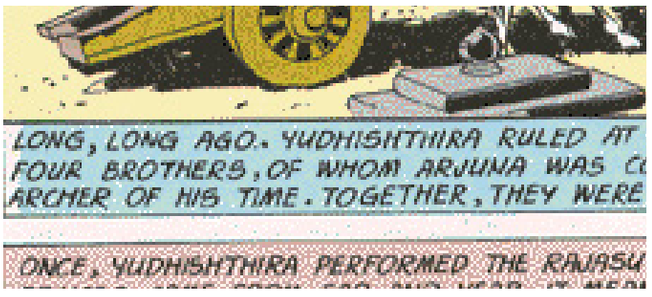
A farmer, Vithoba, lost his mobile phone while cleaning his cowshed and forgot all about it.
However, the next morning, he was surprised to find the plastic pouch with the mobile intact in the dung heap. What was surprising was that the cell had recorded **ten missed calls**. He realised that Meena, his buffalo must have swallowed the mobile.
No one knows what the callers heard. But the buffalo must have heard a *ring tone* every time the cell rang and must have wondered from where the 'moo-sic' was coming.

4. Sudha has fallen ill because she does not eat healthy food and does not exercise. Open a Word Processor and write a letter to her. Help Sudha understand how she should take care of herself.

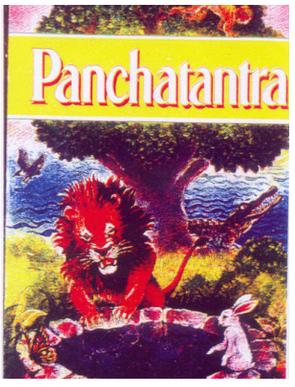
5. You have to make an announcement for a picnic and put it upon the school notice board. Use the different formatting options and prepare the text.



6. Observe the fonts in newspapers, story books and everything that you read.



Comic book



Story book



News paper



Chocolate wrapping Paper



Group activity

Divide the class into groups of five. Each group is given a different topic and asked to prepare a chart to be put up in the classroom on topics such as:

a. Cleanliness

b. Numbering system

c. Stages of development

Two possible ways to make the chart are as follows:

Cleanliness chart

Brush your teeth twice a day.

Wash your hands before eating anything.

Cut your nails regularly.

Take bath and change your clothes after playing.

If you have to wear a school uniform then take it off as soon as you get home. Hang it up to air before you wear it the next day.

Keep your shoes clean by brushing, polishing or washing.

Cleanliness Chart

- Brush your teeth twice a day.
- Wash your hands before eating anything.
- Cut your nails regularly.
- Take bath and change your clothes after playing.
- If you have to wear a school uniform then take it off as soon as you get home. Hang it up to air before you wear it the next day.
- Keep your shoes clean by brushing, polishing or washing.

Project

Do project 6 and 7 given in lesson 7.



Explore!

1. What happens if you write a particular word and change the text colour to white? Click on 'redo' to find what was written.
2. Explore the 'highlighting' and 'underline' options available on the toolbar.
3. Besides the toolbar is there any other way to change 'font size', 'style', and 'colour'?

Teacher's Corner

- Begin the class by asking students to observe each other's handwriting and note the similarities and differences. Tell them that they can use the computer to write in different styles and colours. Inform them that the handwriting on a computer is called 'font' and they can also make it bigger or smaller. Ask them to open a particular textbook and note the different styles of fonts and whether they are bold, underlined and so on. You can also type a short essay or a poem, where you use different fonts for the title and text.

- Open a word processor and demonstrate how to change the font and its size. Ask the students to explore which button can be clicked to change the color of the font. (Ensure that the colour option is seen on the tool bar). As students already know the action of selecting a particular word to edit it, they can be guided to change the fonts and colour on their own. For students who are unable to do it on their own, demonstrate the procedure.

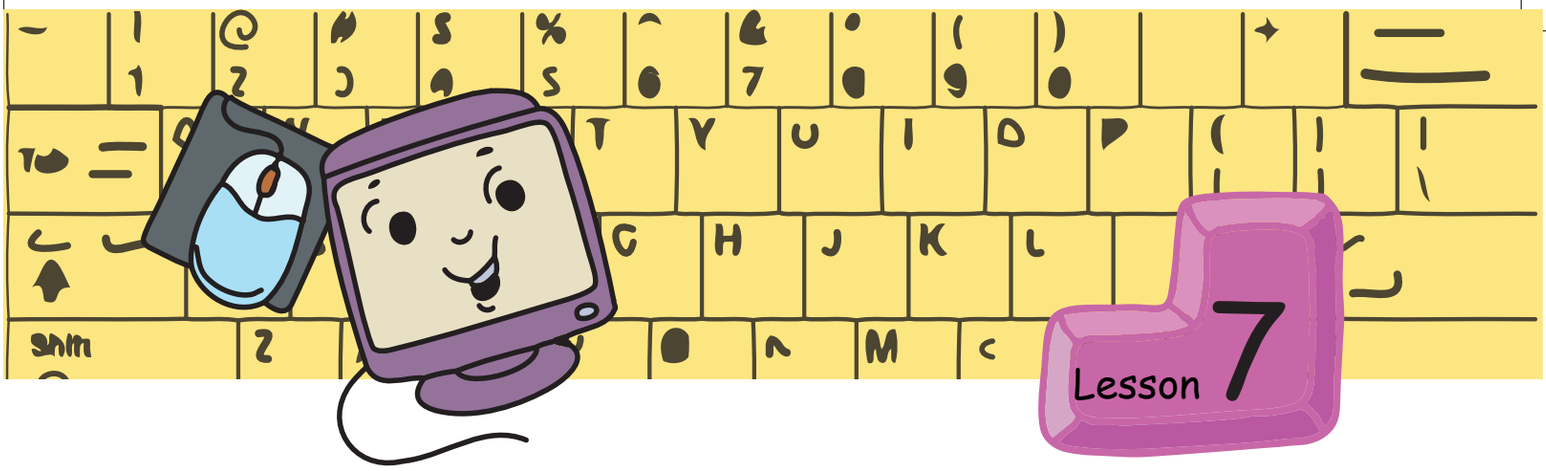
- Inform the students that the styles of writing a particular text have to be used appropriately.

- Illustrate this by showing them the text "**Tejas**, Jyoti and **Moz** are *discussing* computers" and ask what is written and if they can read it easily. Emphasize that while the word processor allows us to use a variety of styles for writing and can make our task easier, it is also important to develop the skill of formatting text appropriately. This skill can be easily developed by observing the font size, style, type in printed text such as text books, newspapers, story books, comics, greeting cards, invitations, etc.

- Summarise the lesson and allow the students to do the activities using the word processor. Remind them to use the 'edit' options they have already learnt.

- Ask the students to write the story included in the lesson on the computer and use the different font options to format the text.

Further Reading :
http://www.education-world.com/a_lesson/02/lp285-03.shtml



Projects

Project 1 (Lesson 1 – Revision of Level II)

1. Use Tuxpaint to draw Jyoti's house and the garden as described below:

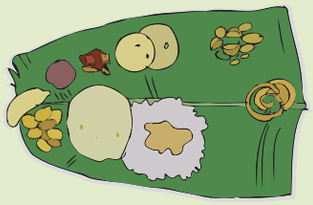
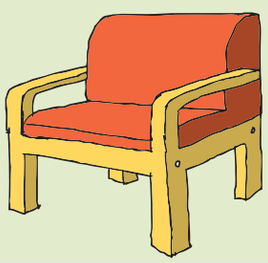
 The walls of the house are rectangular in shape. There is a circular window next to the entrance door of the house. The roof of the house is sloping. The garden is hexagonal in shape. The garden has a coconut tree, a banana tree, a mango tree and a small lawn. There are also some flower plants in pots. It just rained and the sun is shining. There is a rainbow in the sky. A parrot is sitting on the mango tree and a cuckoo is on the coconut tree.

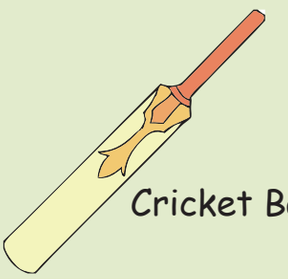
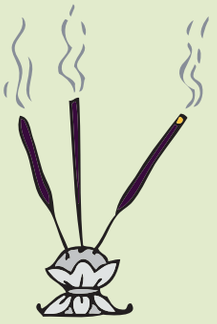
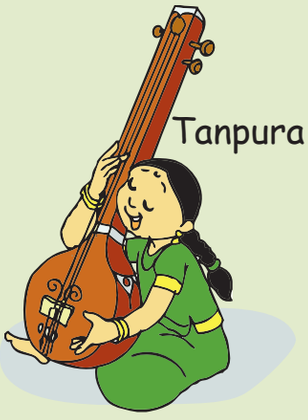
2. When we plant a tree, we get flowers, fruits, wood, etc. We use many parts of the trees like leaves, wood, etc for various purposes like making a musical instrument, furniture, eatable items. There are two lists given below. List A has the names of trees and List B has the products that can be made from these trees. Divide the class into many groups. Let each group represents a tree from List A.

Each group has to:

Step 1: Find the products that are made out of the tree and its parts, from List B.
Example: Coconut tree (input), Product (output) is Coir mat, Broom (output).

Step 2: Tell the class the input, the process and the output of the products.

LIST A - Input	LIST B - Output
Coconut	 banana leaf with food items
Mango	 Coir mat  A broom
Banana	 Oil
Teak	Pickle   Icecream
Sunflower	 Doors  Chair

LIST A - Input	LIST B - Output
Bamboo	 Cricket Bat
Jackfruit	 Perfume  Incense sticks
Willow	 Sitar  Tanpura  Veena
Sandalwood	 Flute

Project 2 (Lesson 2 – Step-wise Thinking)

Chart of an Activity:

- A list of activities are given below.
 1. Going on a picnic.
 2. Buying books (textbooks and storybooks).
 3. Preparing greeting cards for the New Year.
 4. Group recitation of poems and singing songs on Teacher's day.
 5. Preparing a salad (vegetables/fruits).
 6. Going on vacation.
 7. Playing cricket with friends.



- Let each student pick one activity for chart making.
- The chart should show

Activity steps at main level (3 steps with pictures)	Activity steps at detail level for each main step. At least 3 detail steps for each main step. (total of 9 steps or more)

- After the charts have been made
 - Sort students into groups, one for each activity.
 - Each group compares the charts within the group and finds out how different students have outlined different steps for the same activity.
 - Each group together now prepares a single outline of the main steps and the detailed steps involved in that activity.
- Display the chart of each activity on the display board of the class.

Project 3 (Lesson 3 – Introduction to Scratch)

Divide the class into groups of three students each.

1. There are two steps in each of the following activities.

Step 1: Each group makes one of the group members act as a Sprite. The other group members give instructions (to the student who is acting as a Sprite) to draw on a paper the images given below.

Step 2: Write a program in Scratch to make the Sprite draw the images.

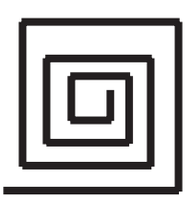
a. **Image 1:** Four squares not touching each other.

Hint: Use the instructions under 'motion', 'pen to draw'. Use 'pen up' after drawing one square.



b. **Image 2:** A spiral.

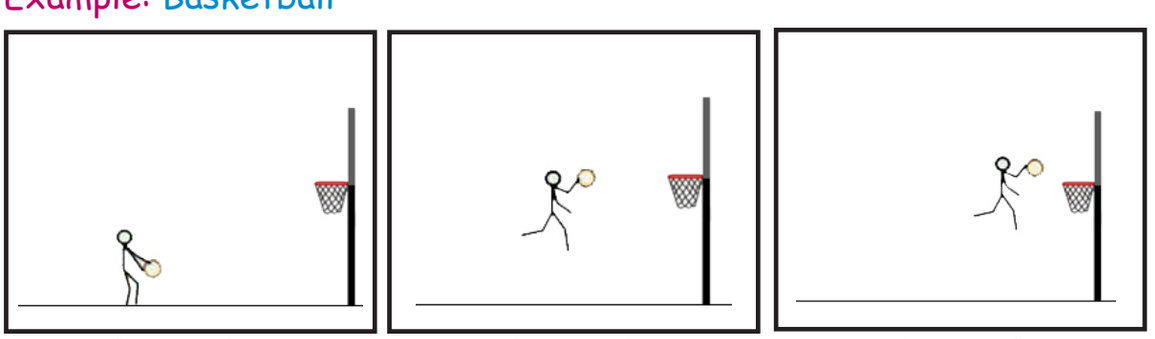
Hint: Use the instructions under motion and pen to draw.



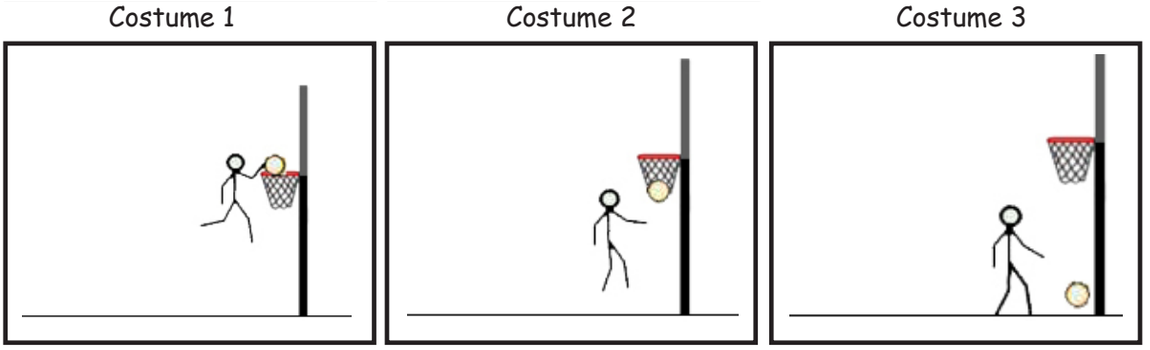
2. Divide the class into 3 groups. Each group does one of the following:

Draw a set of costumes for an activity such as swimming, dancing or playing a game.

Example: Basketball



Costume 1 Costume 2 Costume 3



Costume 4 Costume 5 Costume 6

Write a program in Scratch to demonstrate the activity in Scratch using the costumes.

Project 4 (Lesson 4 – Asanas while using Computers)

Games to play: Divide the class into groups of 6 to 8 children.
Game 1: Each group stands in a single line with their legs apart. There should be enough space between two students in a line, so that they do not touch each other when they bend forward. The first student of each group holds a football.

Start of the game: Game starts when the teacher blows the whistle.

Action 1: The first student at the beginning of the line bends and rolls the ball on the ground, to the student immediately behind, from between the legs.

Action 2: This is repeated by each student, till the ball reaches the last student in the line.

Action 3: The last student runs to the front of the line with the ball. While the last student is running, each student in the line moves back a few steps.



Action 4: Repeat actions 1 to 3 till all the students get a chance to run to the front. At the end of the game, the students are back in their places as at the start of the game. For example,Tejas was the first one in the line then the game continues till Tejas is back at the front of the line.

End of the game: The group that finishes says all together "Hurray". The group which finishes first wins the game.

Game 2: This game is similar to Game 1 except for Action 1.
Each group stands in a single line with their hands up. The first student of each group holds a football.

Action 1: The student at the beginning of the line throws the ball back, over his head, to the student immediately behind.

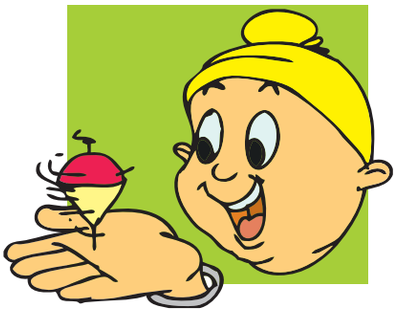
Note: If the ball falls down then the previous player has to repeat the step. For example:

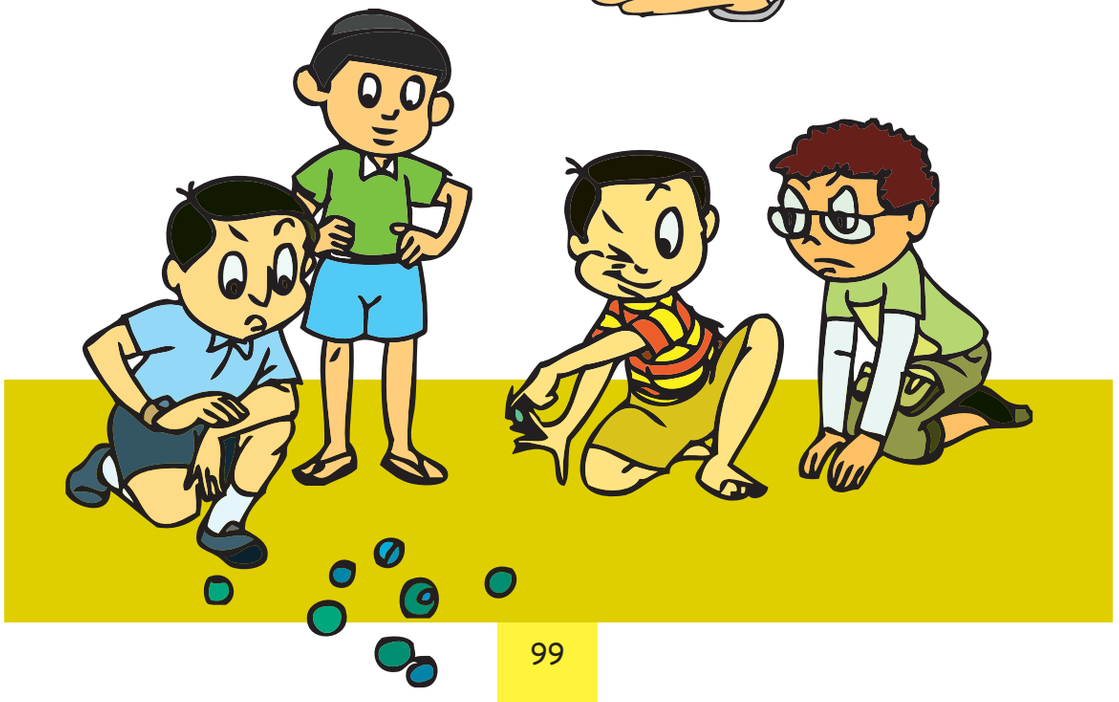
- Tejas is immediately behind Jyoti.
- Jyoti throws the ball back and Tejas drops the ball.
- Then Jyoti picks up the ball and repeats the action till Tejas catches it.

End of the game: The group that finishes says all together "Hurray". The group which finishes first wins the game.

Game 3: There are many interesting games which your parents and grand parents would have played when they were young. Like phugdi, langdi, lagori etc. Find out about these games. Form a group and learn the game. Give a demo of the game to the class.







Project 5 (Lesson 5 - Simple Animation with Scratch)

1. **Make the Sprite follow the mouse**:

Divide the class into groups of two children each.

Step 1: One student in the group acts as a Sprite. The other student shall be the mouse pointer. The student who is the mouse pointer keeps moving around and the student who is the Sprite follows.

Step 2: Select an interesting Sprite and use Scratch to demonstrate the above activity by making the Sprite follow the mouse pointer.

Hint: Use 

and 

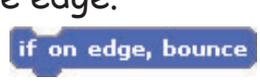
instructions under motion block.

Use 

instruction under the control block.

2. **The butterfly that changes colours**.

Divide the class into groups of three children each.

- Select a butterfly as Sprite. The group can also paint a butterfly and use it.
- Make the butterfly move and it should bounce back when it touches the edge.
 Hint: Use 

to bounce back when Sprite touches the edge.
- Let the butterfly change its colour as it flies.
 Hint: Use 

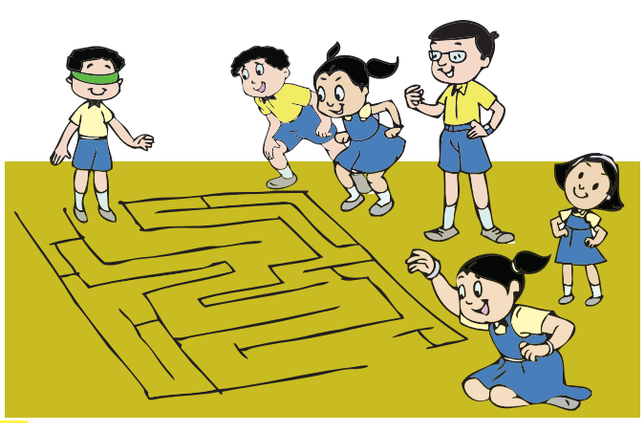
to write the program.

3. **Use the arrow keys to move the Sprite to the left, right, up and down:**

Divide the class into groups of 4 to 6 students each. One student in the group is blindfolded and enters the maze and attempts to come out of the maze by following the instructions from the other student.

Step 1:

- Draw a maze on the floor.
- Blindfold one student
- Make the student stand at the entrance to the maze.
- The other students
- or the group gives instructions.
- Each group notes the time taken for the blindfolded student to exit the maze.
- The group which takes the least time wins.



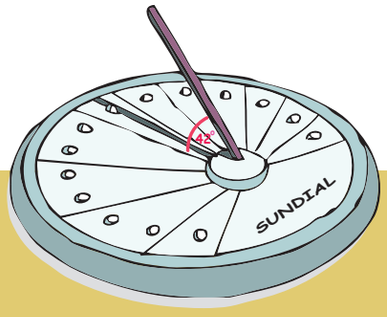
Step 2: Write a program in Scratch to make the Sprite move left, right, up and down, using the arrow keys.
Hint: Use instructions under 'control' and 'motion' blocks to write the program. To make it interesting you can also change the costume.

Project 6 (Lesson 6 - Fun with Text Processing)

Divide the class into 3 different groups.

Step 1: Each group takes up one of the activities below and collects information about the activity.

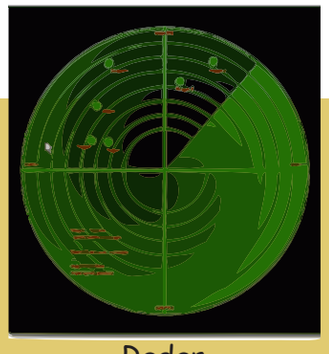
1. How did people find their way to different places when they had to travel by foot? How did they navigate to their destinations? (Ex: sundial, compass,....)
2. What were the navigational aids used by ships in olden times? (Ex: Compass, position of sun, stars, light house.) What do they use now? (Ex: Radar, Satellite....) .
3. How can you find your way to an unknown place now? (Ex: Maps, Tourist guides, Using a mobile, Google maps....).

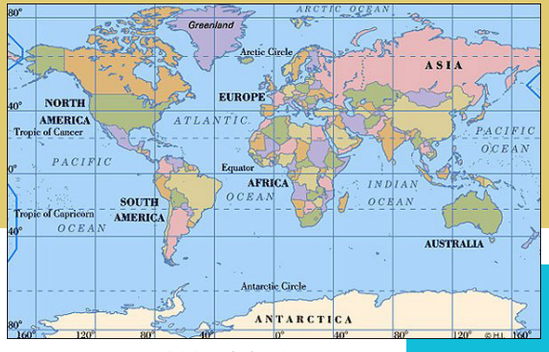


Sundial



Compass


Radar



World Map


Lighthouse

Step 2: Each group does the following:

- Write a story where the characters use navigational aids to go from one place to another.

Guidelines to write the story:

1. Title.
2. Start of the story. (This should include an introduction. Ex: Long time ago people travelled by foot, when they had no transportation. At this time)
3. Narration of the story.
4. End of the story.

Step 3: Enter the story using the word processor. Format the document. Example: Use **bold** and **bigger** `font for title`. For navigational aids use some colour.

- Take a print out of the same and display it on your class display board.

Step 4: Enact the story in class.



Project 7 (Lesson 6 - Fun with Text Processing)

Preparing a Quiz using the text editor. Form groups of five students each. There are three steps in this project.

Step 1: Select one of the following topics. One of your text books should have the topic that you select.

Animals	Shapes and colours
Birds	Weather
Plants	Sources of water
Parts of a body	Solar system
Days of a week, months	Measurements
Food	Indian Money
Types of houses	Weights

Step 2: Open the lesson related to the topic. Pick some words related to the topic. (An example is given below).

Example: Topic selected - Shapes and colours. Shapes: Square, Triangle, Rectangle, circle. Colours: Red, Green, Yellow, Blue, White, Black, Orange.

Step 3: Jumble up the selected words and prepare a quiz.

- The quiz can be in the following formats: fill in the blanks with missing letter, match the following, a crossword puzzle with the words, or simply the jumbled up words.
- Give an interesting title to the puzzle. Give instructions about solving the puzzle.
- Enter the puzzle in the computer using text editor. Save and Print the puzzle.
- Exchange the puzzles between groups and solve them. Exchange the puzzles with other groups and give them the quiz.

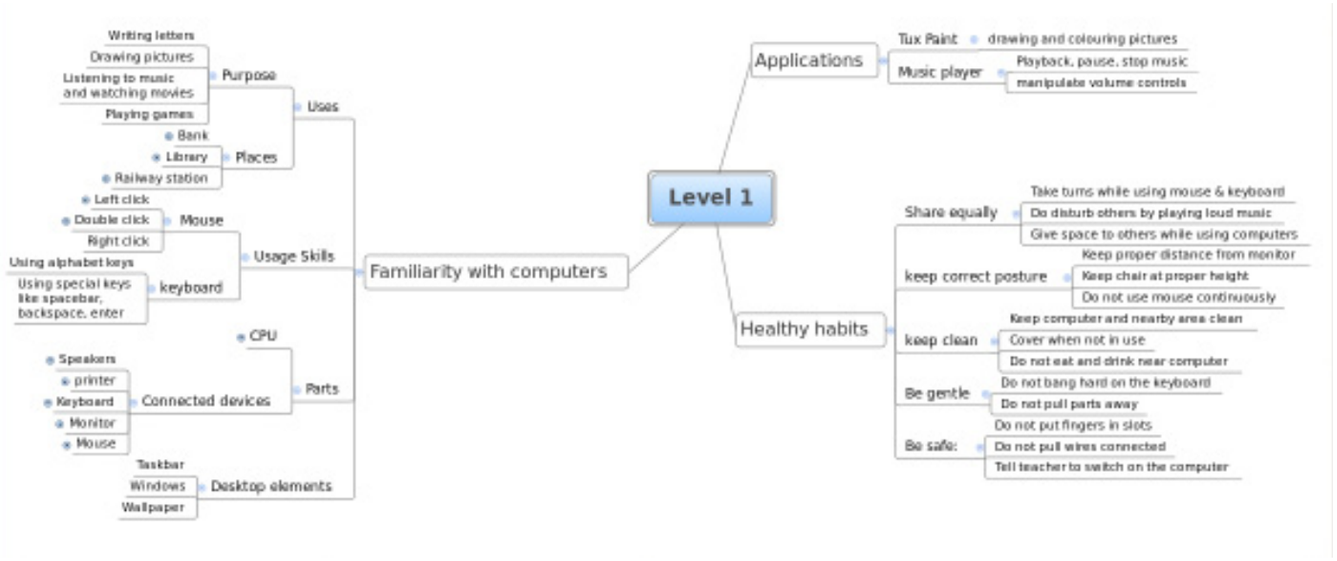
Title of the quiz: Shapes and Colours

Question: Find the names of shapes and colours from the following jumbled up words.

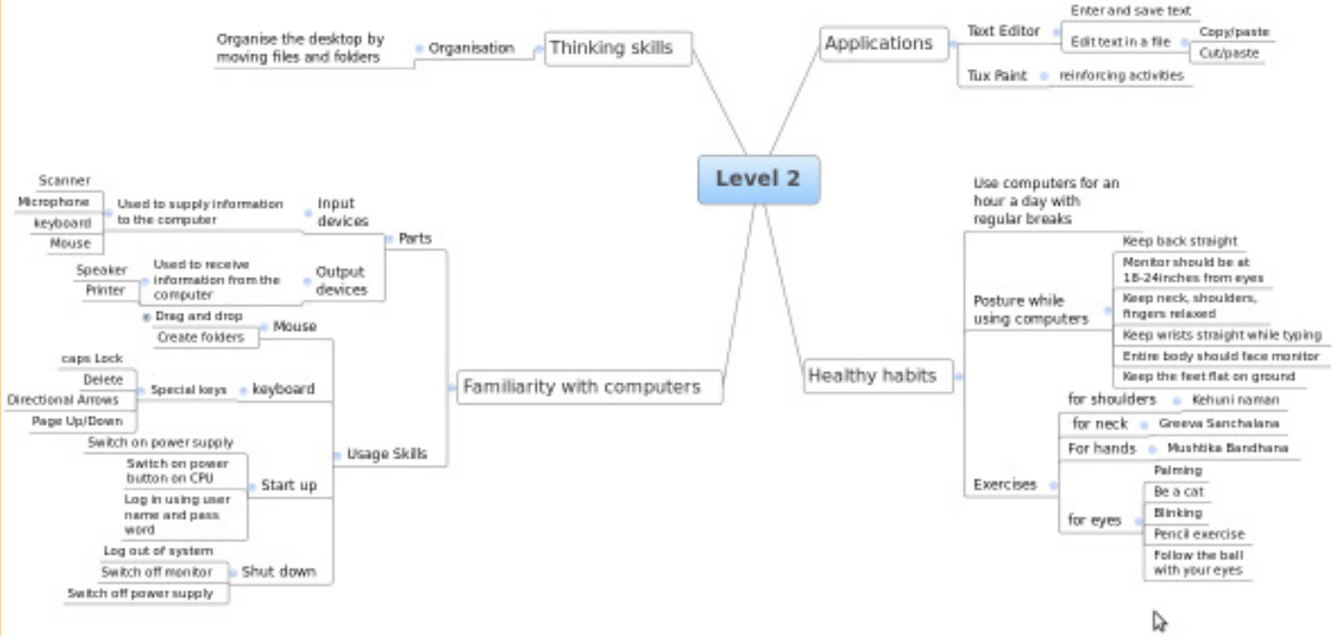
1. ERSUQA	7. ANGELCRET
2. TIRELGAN	8. ITHWE
3. WOLLEY	9. ENGER
4. CLAKB	10. ANOREG
5. CLCIRE	11. SEPHAS
6. EDR	12. LORUOCS

Overview of Computer Masti Series

Computer Masti Level 1



Computer Masti Level 2



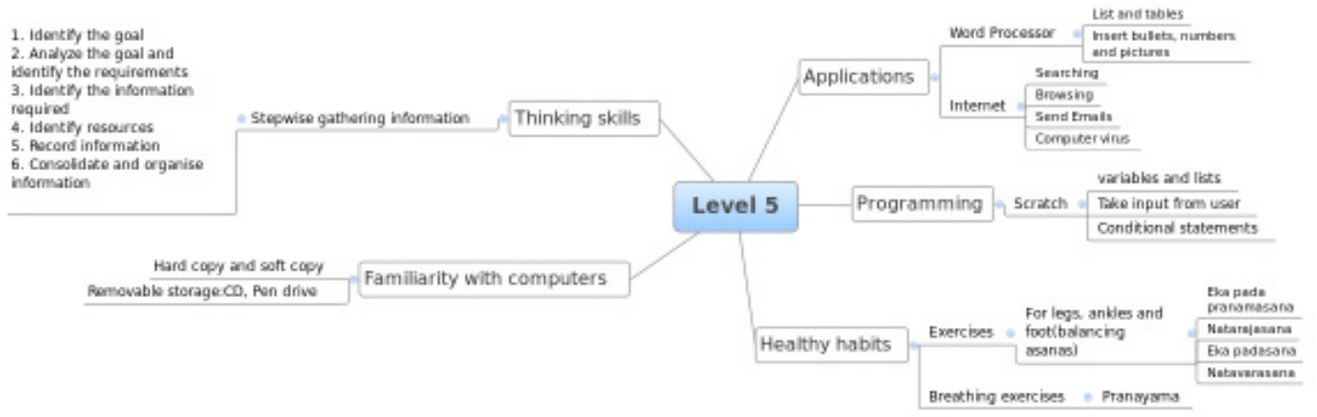
Computer Masti Level 3



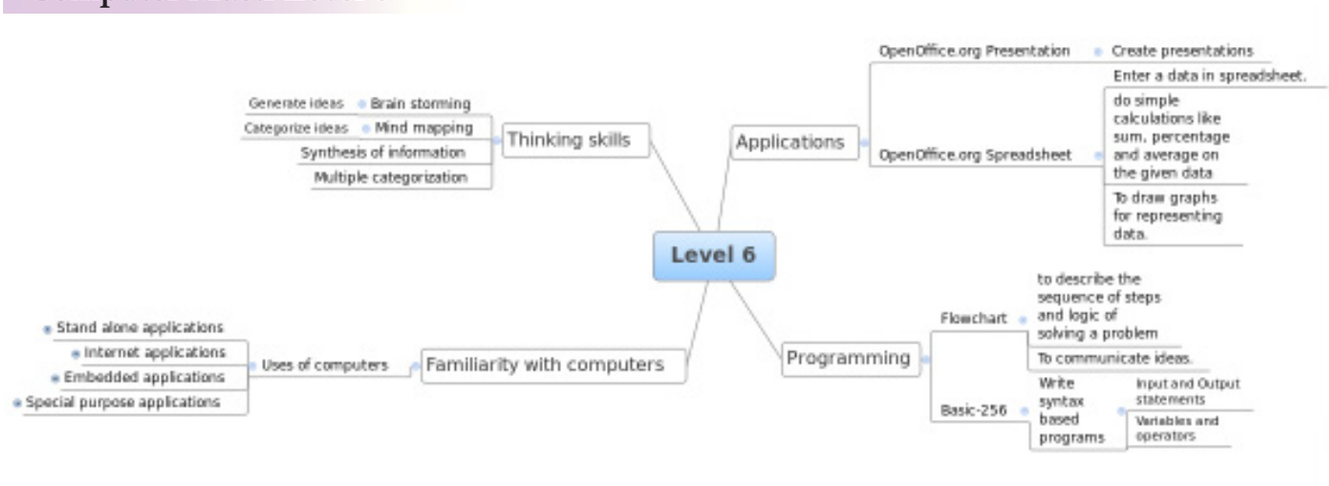
Computer Masti Level 4



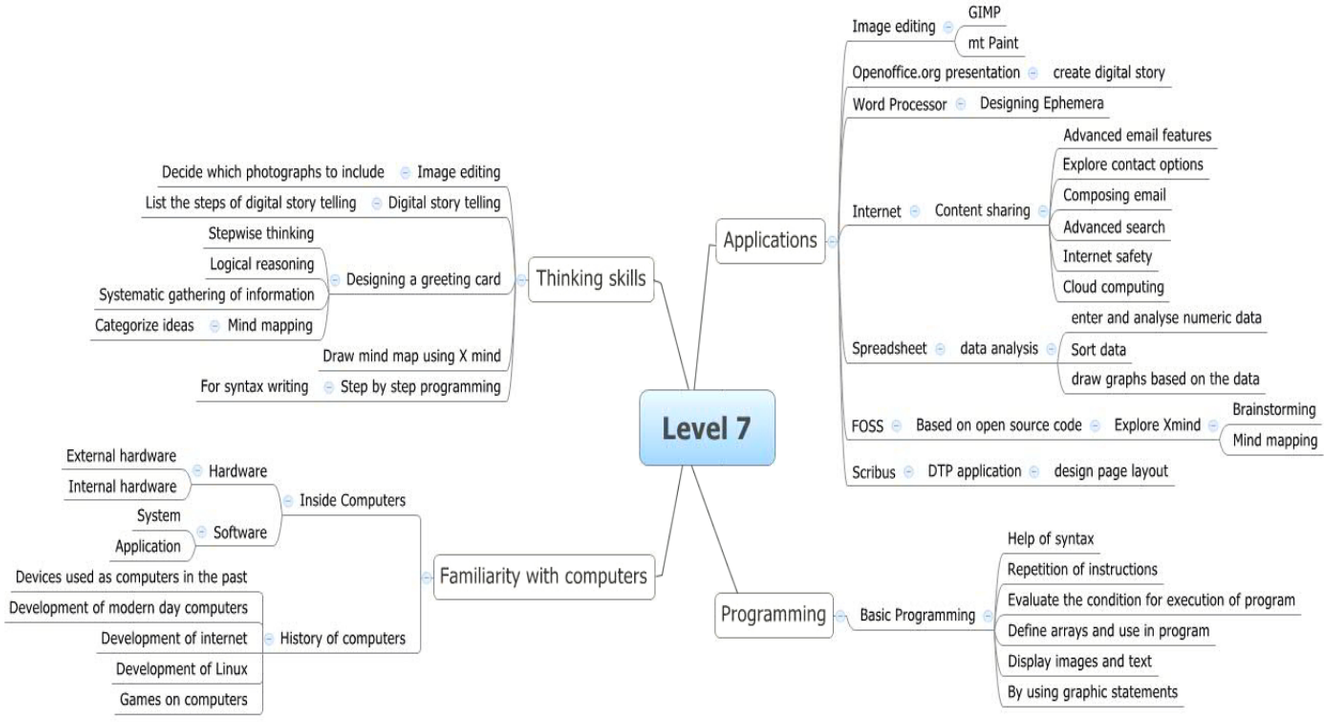
Computer Masti Level 5



Computer Masti Level 6



Computer Masti Level 7





ComputerMasti

First Edition: 2009
Second Edition: 2010
Reprint: 2012

License Terms for ComputerMasti™ Books & Derivatives

SOME RIGHTS RESERVED

The agreement is published under the CC *Plus* (Creative License)

Attribution-Non Commercial-Share Alike

THE WORK HEREIN IS REFERRED TO OUR PRODUCT ComputerMasti™ IN TANGIBLE OR INTANGIBLE FORM (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW IN THE INDIAN JURISDICTION. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED AND IS PUNISHABLE UNDER LAW.

BY EXCERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. TO THE EXTENT THIS LICENSE MAY BE CONSIDERED TO BE A CONTRACT, THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

1. **The exclusive commercial rights to this Licensee lies with InOpen™ Technologies Pvt. Ltd**, hereunder are not subject to a pre-existing Creative Commons license which grants members of the common public nonexclusive and non-commercial right to create their own adaptations or derivatives of the said Licensed Property. Such Creative Commons-licensed works should not be sold or distributed for profit. Licensor agrees not to license the rights which are granted to Licensee hereunder to any competitor of Licensee or to any commercial enterprise intending to create adaptations of the works for commercial distribution.

2. **Restrictions**. The license granted in terms of "attribution" and "share alike" is expressly made subject to and *limited by the following common guidelines:*

a. **You may distribute or publicly perform the work only under the terms of the original License i.e. cc by-nc-sa**. You must include a copy of or at least the Uniform Resource Identifier (URI) for, this License with every copy of the work you distribute or publicly perform. You may not offer or impose any terms on the work that restrict their terms of this license or the ability of the recipient of the work to exercise the rights granted to that recipient under the terms of the license. You may not sublicense the work. You must keep intact all notices that refer to this license and to the disclaimer of warranties with every copy of work that you distribute or publicly perform.

b. If You **Distribute**, or **Publicly Perform the Work** or any **Adaptations or Derivatives**, you must, unless a request has been made pursuant to InOpen™ Technologies with reference to section 2(a), keep intact all copyright notices for the work and provide, reasonable to the medium or means you are utilizing: (i) the name of the original author (or pseudonym, if applicable) if supplied, and/or if the original author and/or licensor designate another party or parties (e.g., a sponsor institute, publishing entity, journal) for attribution ("Attribution Parties") in licensor's copyright notice, terms of service or by other reasonable means, the name of such party or parties; (ii) the title of the work if supplied; (iii) to the extent reasonably practicable, the URI, if any, that licensor specifies to be associated with the work, unless such URI does not refer to the copyright notice or licensing information for the Work; and, (iv) consistent in the case of an adaptation, a credit identifying the use of the work in the adaptation (e.g., "Odiya translation of the work by original author," or "Screenplay based on original work by original author"). The credit required may be implemented in any reasonable manner; provided, however, that in the case of an adaptation or collection, at a minimum such credit will appear, if a credit for all contributing authors of the adaptation or collection appears, then as part of these credits and in a manner at least as prominent as the credits for the other contributing authors. For the avoidance of doubt, you may only use the credit required by this section for the purpose of attribution in the manner set out above and, by exercising your rights under this license, you may not implicitly or explicitly assert or imply any connection with, sponsorship or endorsement by or without the consent of the original author, licensor and/or attribution parties, as appropriate, of you or your use of the work, without the separate, express prior written permission of the original author, licensor and/or attribution parties.

For any further clarifications or a better understanding of this license, please email us at legal@inopen.in or visit our web page www.computermasti.com/legal . CREATIVE COMMONS INDIA ENCOURAGES THE USE OF *CC Plus* LICENSE FOR COMMERCIAL PURPOSE. We hereby support the above License.

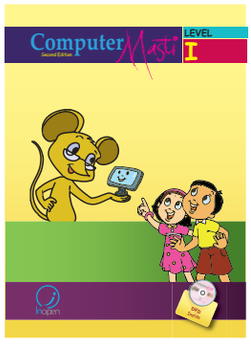
Prof. Sridhar Iyer
Licensor and Editor, Computer Masti™
Dept. of CSE, IIT Bombay

Prof. Shishir Jha
Project Lead–Creative Commons, India
SJSOM, IIT Bombay

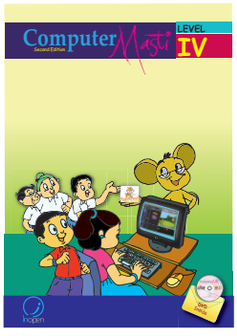
** Creative Commons is working with India jurisdiction-specific licenses from the generic Creative Commons licenses.*

©ComputerMasti in the form of logo as well as text is proprietary trademark of Dr. Sridhar Iyer
© Moz, Tejas & Jyoti in the form of image as well as text is proprietary trademark of Dr. Sridhar Iyer
©InOpen in the form of logo as well as text is proprietary trademark of InOpen Technologies Pvt. Ltd.

Other books in Computer Masti series







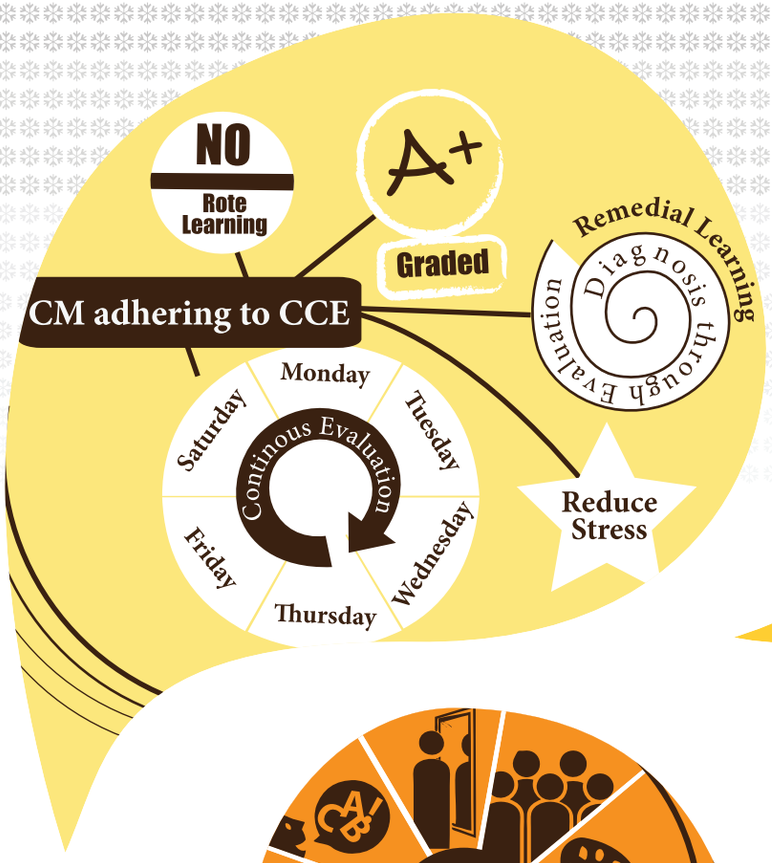


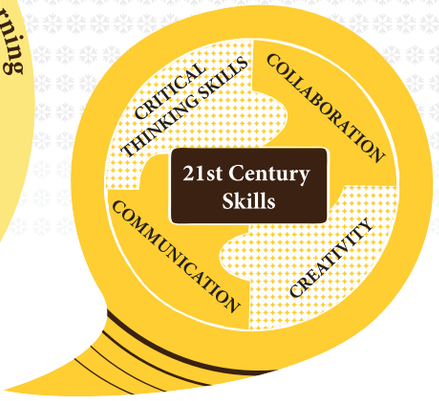




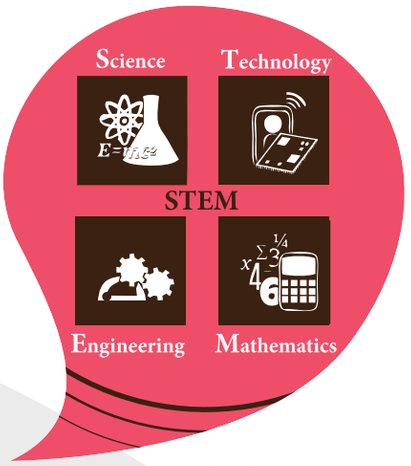


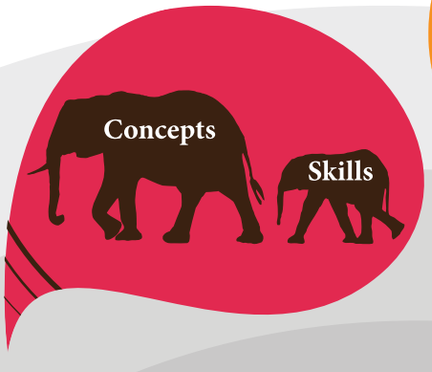
The CD contains the Computer Masti Toolkit (for Windows Operating System) for the applications used in the book. Please write to us at info@computermasti.com for further information on Computer Masti.













Computer Masti is a content-service solution to teach computer science in schools. It consists of an extensively research based curriculum and instruction material for teaching computers.

- Fun is an important element of learning in Computer Masti.
- Graphic organisers (mind maps) are included as tools for ideation and representation.
- CM prepares students towards STEM literacy with focus on technology.
- Worksheets, activities and projects are in line with continuous and comprehensive evaluation (CCE) guidelines and captures higher order thinking skills (HOTS)
- CM illustrations challenge gender stereotypes thus sensitising the students and teachers.
- In addition to English, available in 8 Indian languages and 2 Foreign languages.

अ ಬ অ અ ఆ அ অ ಆ ت A



Computer Masti

ISBN 978-81-910114-2-5
9 788191 011425
InOPEN
SINE, IIT Bombay
www.inopen.in

InOpen Technologies Pvt. Ltd, M-03, 3rd Floor CSRE, IIT Bombay, Powai, Mumbai - 400076. Email: info@inopen.in, Ph: +91 22 2572 5596

www.computermasti.com